THE SIXTIETH YEAR.

Companion to the Almanac;

OR,

YEAR-BOOK

OF

GENERAL INFORMATION

FOR

1887.

PART I.

THE METROPOLITAN POLICE, STAR-GROUPS AND STAR-MAGNITUDES, THE HISTORY OF SHORTHAND, ASTRONOMICAL PHOTOGRAPHY, BURMA, HISTORICAL MSS., THE ISLANDS OF THE PACIFIC, COLONIAL AND INDIAN EXHIBITION.

PART II.

ARCHITECTURE AND PUBLIC IMPROVEMENTS, ART EXHIBITIONS, SCIENCE, MUSIC, SPORT, LEGISLATION, STATISTICS, CHRONICLE AND OBITUARY OF 1885–86.

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CONTENTS.

PART I.

THE METROPOLITAN POLICE, STAR-GROUPS AND STAR-MAGNITUDES, THE HISTORY OF SHORTHAND, ASTRONOMICAL PHOTOGRAPHY, BURMA, HISTORICAL MSS., THE PACIFIC ISLANDS, THE COLONIAL AND INDIAN EXHIBITION.

	Page
The Metropolitan Police. By C. E. HOWARD VINCENT, C.B., M.P.	5
Star-Groups and Star-Magnitudes. By W. T. LYNN, B.A., F.R.A.S.	12
The History and Present Position of Shorthand. By W. E. A. AXON, F.S.S.	22
Astronomical Photography. By E. W. MAUNDER	35
Burma. By Lt.-Col. D. MCNEILL	49
Historical Manuscripts. By W. E. A. AXON, F.S.S.	73
The Pacific Islands. By H. A. WEBSTER	83
The Colonial and Indian Exhibition. By A. J. R. TRENDELL, C.M.G.	108

PART II.

ARCHITECTURE AND PUBLIC IMPROVEMENTS, ART EXHIBITIONS, SCIENCE, MUSIC, SPORT, LEGISLATION, STATISTICS, CHRONICLE AND OBITUARY OF 1885–86.

Architecture, &c., 1885–86. By Prof. T. HAYTER LEWIS	128
Art Exhibitions of the Year. By COSMO MONKHOUSE	160
Science of the Year. By R. A. PROCTOR	173
Music of the Year. By J. A. FULLER-MAITLAND	196
Sport in 1886. By W. C. A. BLEW	207
Table of the Public General Acts passed in the 23rd Parliament and the 1st Session of the 24th Parliament of Great Britain and Ireland	219

Page

Abstracts of Important Acts of Parliament, passed in 1886 :—

1. The Church :
   - Incumbents and Benefices Loans Extension Act . 225
2. Literature and Art :
   - International Copyright Act 225
3. Professions, Trade, and Commerce :
   - Medical Act 227
   - Shop Hours Regulation Act 231
4. The Army :
   - Army Regulation and Discipline 231
5. Supply and Finance :
   - Customs and Inland Revenue Act 233
   - Customs Amendment Act 234
   - Secret Service Money (Repeal) Act . . . 234
6. Law and Justice :
   - Guardianship of Infants Act 234
   - Married Women (Maintenance in Case of Desertion) Act 236
   - Intoxicating Liquors (Sale to Children) Act . . 236
7. Miscellaneous :
   - Marriages Validity Act 236
   - Prison (Officers' Superannuation) Act . . . 237
   - Metropolitan Police (Compensation) Act . . . 237
   - Marriage Act 238
   - Sporting Lands Rating (Scotland) Act . . . 239
   - Lunacy (Vacating of Seats) Act 239
   - Crofters' Holdings (Scotland) Act 240
   - Riot (Damages) Act 244
   - Extraordinary Tithe Redemption Act . . . 245

Abstracts of Parliamentary and other Official Documents :
1. Finance, Taxation, and Currency 247
2. General Commerce and Navigation 255
3. Trade and Agriculture 260
4. Population, Public Employment, and Vital Statistics 262
5. Accidents and Crimes 264
6. Education, Science, and Art 265
7. Emigration 269
8. Post Office 271
9. Miscellaneous 274

Chronicle of Events and Occurrences, 1885–86 275

Obituary, 1885-86 283

INDEX 288

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THE METROPOLITAN POLICE.

THERE is no public body of which the constitution and organisation is of greater importance to five millions of Her Majesty's lieges than the Metropolitan Police. It is now regarded, not only by the people of London, but also by the tens of thousands of visitors to the British metropolis, as entitled to take rank, not as a mere local institution, but as one of national interest. The British Parliament has been justly described as the mother of Parliaments, and the Metropolitan Police Force may be regarded as the progenitor of the constabulary organisation in the wide dominions of the Anglo-Saxon race over the surface of the earth. There are not a few still living who well remember the jealousy and suspicion with which was received the bold attempt of the great statesman, Sir Robert Peel, to put on a sound and proper footing the protection of public order in this country. "Old Charlies" had their friends, and they made their voices loudly heard in denunciation of the proposal to replace them by "Peelers." Sir Robert had to feel his way carefully, but little by little the public came to recognise that he had no sinister design of undermining the liberties of the people by a system of espionage borrowed from the teachings of either Vidocq or Fouché. Confidence in the new police force grew and grew.

Her Majesty the Queen had not been seated a year upon the throne before the Government of the day recognised that the public interest required that the Metropolitan Police Force should be put on a firmer basis, and its duties and privileges be clearly defined by statute. The Metropolitan Police Act, 2 and 3 Vict., c. 47, was the result, and although the experience of nearly fifty years shows that it may be advantageously amended in some particulars, it has admirably served its purpose, and been a clear and comprehensive charter of the functions of the Metropolitan Police.

There exists some confusion in the public mind upon the area of action of the Metropolitan Police. The Metropolis proper is formed of 23 parishes and 15 districts, forming an outer circle to the City of London, containing about three million inhabitants, and administered by the Metropolitan Board of Works, so far as its powers of local government at present go. But the Metropolitan Police District is a far wider region. Its centre is Charing Cross, and its frontiers are not found until a radius of 15 miles has been reached on every side. In some cases they even go further, for if a parish has the good fortune to obtain but a foothold within the distance of 15 miles from Charing Cross, it claims the protection of the Metropolitan Police over its whole extent. Within this wide circle, measuring 30 miles across in every direction, there now live close upon five millions of people. They embrace every race in the world, and certainly not less than 300,000 Scotchmen, 500,000 Irishmen, and 250,000 foreigners, many of them most able, accomplished, industrious men, who add much to the lustre of literature and art, to the advancement of commerce, and to the capacity of workmen, but many also, on the other hand, who

"Left their country for their country's good."

The greatest anomaly in the laying out of the Metropolitan Police District was the exclusion from its 700 square miles of the 1 square mile which forms the world-famed City of London. The Corporation of London, ever jealous, and rightly so, of the jurisdiction and privileges conferred upon it in times past in recognition of its vigorous foundation of the greatness of the British Empire, claimed the right to take care of the lives and property of its own subjects. It thus comes that the City Police Force was established contemporaneously with the Metropolitan Police, but, unlike the latter, is both free from the control of

the Imperial Government and of pecuniary subsidies from the national treasury. Theoretically and under another state of affairs this divided control would appear to be ill-judged and injurious to the public welfare. There have been many suggestions of amalgamation. Once in 1868 the opportunity offered, and the Common Council were disposed to acquiesce if the City Commissioner was made Commander-in-Chief. The occasion was allowed to pass, and one is bound to admit that no great harm has resulted. The City Police has always been composed of picked men, and they have been worthily commanded for a quarter of a century by Sir James Fraser, assisted by Lieutenant-Colonel Bowman, who has been lately succeeded by Major Smith. The City of London does not therefore form in any way a sanctuary for fugitives from metropolitan justices, or a safe resort for evil doers. Moreover, the constables of the Metropolitan Force are also constables within the City of London, and neither their authority to act nor the warrant of the Metropolitan Police magistrate are brought to bay by the line which denotes the commencement of the dominion of the Corporation. This same extension of power was also wisely granted to the members of the Metropolitan Force, who are not only constables in London, but throughout Middlesex, Surrey, Hertfordshire, Essex, Kent, Berkshire, and Buckinghamshire, and upon the River Thames adjoining those counties, as well as within the royal palaces of Her Majesty and 10 miles thereof.

The Metropolitan Police now (May, 1886) musters a total strength of 13,856 members, including 26 superintendents, 641 inspectors, 1,165 sergeants, and 12,024 constables. The unit of organisation is the division. There are 21 land divisions, designated by letters of the alphabet, 1 division on the River Thames, and 4 dockyard divisions, whose services are paid for out of Admiralty funds.

Each division is under the charge of a superintendent, and consists of a number of sub-divisions proportionate to its size and population, each being in charge of an inspector.

The supreme control of the Metropolitan Police is vested in the Secretary of State for the Home Department. But the chief executive officer is the Commissioner of Police of the Metropolis (now Major-General Sir Charles Warren, G.C.M.G.), who is aided by three Assistant Commissioners and four District Superintendents. The number of the latter is likely, however, to be ere long increased to four, at which it stood from 1868 to

1881. The chief financial authority is the Receiver of Police, and he holds an absolutely independent position under the Home Secretary.

Admission into the force is regulated partly by an elementary examination, by submission to medical tests, and to the fulfilment of the condition of being 5 feet 8 inches in height, under 35 years of age, if married not having more than two children, and being able to produce undeniable personal references as to character. There are usually several hundreds of accepted candidates upon the books, and they are called up as vacancies occur and the service is augmented.

The rates of pay begin at 15*s.* a week on the probation class, rise to 24*s.* a week on final acceptance, rising after three years to 27*s.* a week, and after a further period to 30*s.* a week. The sergeants receive from 32*s.* to 40*s.* a week; the inspectors from 100*l.* to 180*l.* a year; and the superintendents from 300*l.* to 400*l.* There are also many additions to pay in respect of the performance of prolonged or extra duty, and of sustentation allowance when off duty. Two and a half per cent. is deducted from the weekly pay, which is receivable on Wednesdays, for the Superannuation Fund. A pension is not granted at any fixed period, but after 15 years' service, if the chief surgeon certifies that an individual is unfit to perform further duty, he receives a handsome allowance for life. If before the completion of 15 years' service ill-health compels retirement, a gratuity is given of one month's pay for each year of service.

The advancement up to and including the rank of superintendent is by selection tempered by seniority, and subject to the passing of an educational examination conducted by the Civil Service Commissioners. A man therefore beginning as a simple constable may rise to the position of superintendent of a division with probably from 600 to 800 men under him, and a district of vast extent to protect.

The headquarters of the Metropolitan Police at Great Scotland Yard are a disgrace to London, and most inconvenient. But Parliament has just authorized the borrowing of 200,000*l.* for the purpose of providing more suitable central accommodation.

The stations are for the most part well adapted to their purpose, and have as a rule sleeping accommodation for the single men of the sub-division, who are only called upon to pay 1*s.* a week for lodging and the use of libraries, billiard tables, and recreation rooms. They are also provided with uniform.

The Headquarter or Scotland Yard staff is divided into several branches. The most important of these is—

The Criminal Investigation Department. It was established in 1878 by the present writer, and formed of a central office with a chief superintendent and some thirty superior officers at Scotland Yard, and a local inspector with from 6 to 15 officers under him in each of the town divisions. The whole department is now under the direction of an assistant commissioner (Mr. Monro), who takes charge also of the whole of the criminal business of the metropolitan force. The members of this detective service receive considerably higher pay than the police in uniform, together with higher allowances. The service can rarely be entered save after two or three years' training in the uniform branch, and volunteers for it are carefully selected as much for their good character as their intelligence and ability.

The Convict Office is also attached to the Criminal Investigation Department. It has the duty of supervising the conduct of convicts who are at large upon ticket of leave, and persons who have been sentenced to police supervision, and so carefully and judiciously is the work performed that a complaint is unheard of, and the office is practically a most useful medium for assisting discharged prisoners who give promise of amendment. The property of prisoners convicted in the Metropolitan Police District is also kept here until their release. A museum has also been formed of the most curious relics of the crime of London in the past twenty years.

The Commissioner's Office is the next sub-division. It is manned by clerks on the Civil Service Establishment, and is divided into three branches for correspondence, accounts, and candidates.

The detailed administration of the interior economy of the service is transacted through the executive branch, which is presided over by Chief Inspector Cutbush. It embraces the telegraph and despatch service, and keeps the rosters of promotion, transfer, &c.

The Public Carriage Branch issues licences to the 13,000 hackney carriage drivers in the metropolis, and inspects the vehicles and horses. All property found in public carriages has to be deposited at the Lost Property Office, Whitehall Place, and upon proof being forthcoming of ownership, it is restored, subject to the payment of a reward proportionate to the nature and value

of the article. This excellent system has been largely instrumental in increasing the honest disposition of the London cabmen.

The police on duty in the streets perform eight hours' duty in the twenty-four. The day duty is divided into four reliefs, viz., 6 A.M. to 10 A.M.; 10 A.M. to 2 P.M.; 2 P.M. to 6 P.M.; and from 6 P.M. to 10 P.M. The duty is divided into two reliefs. Thus, if a constable goes on duty at 6 A.M., he comes off at 10, and goes on at 2. The night duty is, however, performed in one stretch, from 10 P.M. to 6 A.M., and this the men prefer to turning out of bed at 2 in the morning, as they had to do formerly. The conduct of the police as a whole is exemplary, and many of the faults which do occur are due to ignorance, while the cases of drunkenness are traceable almost entirely to the mistaken kindness of people in persuading police to drink strong spirits without food when exposed to the influence of cold night air.

The expenses of the force amount to almost 1,200,000*l.* a year: of this sum five-ninths are contributed by the Treasury from Imperial funds, and four-ninths are raised by the several vestries and district boards from rates on the precept of the Commissioner.

The police have authority, which extends indeed to every citizen, to arrest any person whom they may have reasonable cause to believe has committed felony, and they may take into custody any person against whom a charge of felony is preferred by a responsible individual. They may also arrest any person who commits a misdemeanour in their presence. But in all other cases a warrant is necessary to justify arrest (see "Police Code," Cassell and Co.). Foreign officials who visit London are loud in their praises of the Metropolitan Police, and there is no doubt that they compare favourably with Continental forces. Their skill in the regulation of traffic in the crowded streets of London, their politeness and courtesy in assisting passengers and answering enquiries are too well known to need mention. Complaints, too, are rare of the exercise of any excessive severity. They are armed only with the truncheon, and, although when outrages have been committed against them with firearms, it has been a question of providing them with revolvers, the police themselves have objected thereto. They are frequently treated with much brutality by drunken ruffians, and over 2,000 assaults of the police come annually before metropolitan magistrates, but on the whole they deservedly enjoy the

consideration and respect of the great mass of the population. This is not only evidenced by many incidents in everyday life, but by the liberality of the public towards the Metropolitan and City Police Orphanage at Strawberry Hill, where 250 orphan children receive an admirable education, and also towards the Police Relief Fund.

In the prevention and detection of crime the success of the force is scarcely less remarkable than in the preservation of order. The wonder is rather how few crimes are committed and especially of a serious character, than at the amount of crime. It is barely half that committed in many Continental cities, and more especially in crimes of violence with less than a moiety of the population. Public feeling, too, is exceedingly susceptible as to the means adopted for the detection of crime, and if there is sometimes a failure of justice it is rather owing to the fact that the police are compelled to fight with their hands tied than to any want of ability or intelligence on their part.

But we may take comfort in this, that if the arrest of an individual is of such importance as to justify a large expenditure, and his identity is known, the chances of escape are only one in a hundred. The people of London may therefore on every ground be satisfied with their police force, and be assured that upon the whole it is in all respects worthy of the great metropolis of the British Empire.

C. E. Howard Vincent.

STAR-GROUPS AND STAR-MAGNITUDES.

THE names still attached to the largest and most important star-groups or constellations are of Greek origin and connected with the mythology of that people. How far they may have been in many cases adapted from those given in still more ancient times by eastern or Egyptian star-gazers, it is impossible to say. All our readers will remember references to two or three constellations in the book of Job, and in that of the prophet Amos. The Septuagint translators put their own interpretations upon the asterisms intended, and to them we owe the suggestions "Arcturus, Orion and the Pleiades" (although taken in the reverse order) of the translation of Job ix, 9, in the Authorized Version. Commentators have come to the conclusion that the Hebrew word thus rendered Arcturus is intended to indicate not a single star, but the constellation or group so familiar to all under the double name of the Great Bear and the Wain (or Charles's Wain). It literally means a bier or litter, a very ancient simile of the four stars in the constellation supposed to form the body of the wain or waggon, whilst the other three stars (forming the tail of the supposed bear or the horses attached to the supposed waggon) were called the mourners, intended by the "sons" of the Authorized Version of Job xxxviii, 32. It is most probable that the other two asterisms referred to in Job ix, 9, really are the constellation Orion and the cluster which, after the Greek writers, we call the Pleiades. Orion is well known as the most beautiful of all the constellations, and does suggest the idea of a warrior; hence it is generally called in the oldest classical authors, the strength of Orion, *i.e.*, the mighty Orion; the Hebrew word means fool, being probably connected with the idea of the foolishness of mortal strength if put in comparison with the almighty power of God. The last word of the three in the verse referred to, means in Hebrew "heap" or "cluster," and so very remarkable and conspicuous is the cluster of stars known as the Pleiades, that the Septuagint translators were probably right in conjecturing this to be the group intended, although the Vulgate substituted the more diffused cluster in the same constellation which we, following the Greeks, call the Hyades, and which contains that beautiful star in the eye of the supposed bull, formerly called Palilicium, a classical term which has been superseded by the

Arabian designation Aldebaran. The same two Hebrew words meaning literally "cluster" and "fool" respectively, are used in Amos v. 8, where the latter is again rendered in the Authorized Version Orion, and although the former is translated not "Pleiades," as in the book of Job, but "the Seven Stars," it is evident, by the reference in the margin to the passages in that book, that the cluster known as the Pleiades, and supposed to have had, at any rate of yore, seven stars as its full number,* is in fact intended to be understood.

We now pass on to consider the earliest references to the constellations found in ancient Greek writers. Both in the Iliad and Odyssey allusions are made to a few. In the description of the shield, fashioned for Achilles by Vulcan in the 18th book of the Iliad, the Pleiades, the Hyades, Orion and the Bear are mentioned. The last of these is said to be also called by the name of waggon or chariot, and to be in dread of the mighty Orion, on which it keeps its eyes fixed. Some perplexity has been caused by the statement of Homer (as we have it) that this is the only constellation which does not dip into the ocean (*i.e.*, which does not set,) for surely Cassiopeia, if not some other less conspicuous groups which are in the same predicament, must have been formed into constellations at that time. Possibly the passage may not have come down to us in its original form; and indeed the whole description of the shield is considered by most modern classical scholars to have been a later addition to Homer. In the fifth book of the Odyssey, Ulysses is said to have been guided in navigating his ship at night by observations of the Pleiades and of Boötes. But undoubtedly one of the earliest writers whose works have come down to us in which mention is made of the constellations is the Ascræan poet, Hesiod, in his "Works and Days," where directions are given to carry on the operations of agriculture (with several broad hints to his brother Perses to be more diligent in these) by observations of the stars; the groups named being Orion, the Hyades, and Pleiades, besides the individual stars Arcturus and Sirius. We are told by Xenophon that this was considered even by Socrates, who lived more than 400 years after the time of Hesiod, to be the only use of astronomy. Aristophanes indeed in his comedy called "the Clouds," represents him to have dabbled in what we

* Ovid says the number was supposed to be seven, but was really only six. Whether one had become fainter, it is impossible to say; sharp eyes can now see seven and occasionally a larger number.

should call astrology, and first introduces him to us as gazing fixedly at the sun to obtain information in some unexplained way on mundane affairs, and so to be enabled to give lessons in trickery. Of course we are not to take that seriously; and we now pass on to one who may be justly looked upon as the first astronomer as well as the first geometer. This was Eudoxus, who was born at Cnidus in Caria about ten years before the death of Socrates. His works have not come down to us, only a few fragments preserved by Hipparchus; but it is known that he gave a description of the constellations, and wrote a work on geometry of which great use was made by Euclid. The former of these was versified in the "Phænomena" of Aratus, a work which has acquired great celebrity in Christian times, owing to its having been quoted by St. Paul in his address before the Areopagus at Athens. Aratus was, like the apostle, a native of Cilicia, either of Tarsus itself, or more probably of Soli, which was a very short distance to the west of that city: he was invited to the court of Antigonus Gonatas, king of Macedonia, who died in B.C. 239. Both Eudoxus and Aratus then were of Asia Minor; and so also was Hipparchus, the greatest of all the Greek astronomers, who was a native of Nicæa, in Bithynia, but appears to have made most of his observations, which extended from B.C. 160 to 125, at Rhodes. Besides many important discoveries on which it is no part of our present scheme to enter, Hipparchus was the first to make a catalogue of stars, which Pliny says would have been an audacious thing even for a god to do. He was induced, we are told, to undertake it by the appearance of a new star, which is thought to be the one mentioned by the Chinese annalists as having burst out in the constellation known to us as Scorpio; the object being that posterity might know whether such events were of frequent occurrence. Unfortunately the catalogue of Hipparchus as drawn up by himself has perished; but it is included with some modifications in the great astronomical work of Ptolemy which we, in imitation of the Arabian astronomers, called by the name of the Almagest. The principal northern constellations, together with those of the southern groups which are visible in Europe, are described in this work, the importance of which cannot be over-estimated. Not only are the positions of the principal stars all indicated, but the magnitudes of each are given to a very considerable degree of accuracy.

At present, however, we are concerned with the constellations

themselves. Ptolemy (of whose personal history nothing is known but that he was a native of Egypt, and wrote his works in the reign of the Emperor Antoninus Pius, who died in A.D. 161, and whom he probably survived a few years) enumerates forty-eight of these, besides giving the positions of several "unformed" stars situated beyond the boundaries of any constellation. For convenience of naming, these have subsequently been distributed into smaller or less conspicuous constellations, formed in more modern times. The constellation now known as Cygnus, but which was formerly sometimes called Olor,* appears in Ptolemy simply as ὄρνις (the Bird); it is worth notice that whereas in the description given of it by Aratus (who is in several matters inaccurate, as was pointed out by his great successor Hipparchus) it is said to have no bright star, Ptolemy speaks of a brilliant star in the bird's tail, to which he assigns the first magnitude; it is the star known in modern nomenclature as α Cygni, and now rated between the first and second magnitudes. With regard to the zodiacal constellations, the Greek astronomers practically only recognized eleven figures (all of some living creature, as is implied in the very word zodiac), but from the necessity of a twelvefold division for the months of the year, they gave the name of χήλαι (the Claws, *i.e.*, of the Scorpion) to the small group between Virgo and Scorpio, which we in imitation of the Romans call Libra (the Scales). The Greek word in question signifies not only claws but anything parted into a pair; hence it has been thought that the Romans in later times called the group Libra (a pair of scales) from a simple misunderstanding. It will be noticed that Cicero† calls it by the name Jugum; but Libra is found both in Virgil and in Manilius. Avienus, in his translation of Aratus, adopts the Greek word in the form Chelæ, which is also found in the beginning of the Georgics. All classical scholars will recollect how Virgil, in flattery to Augustus, suggests that the Scorpion will draw in his claws (*brachia*), and leave room for a new constellation to be called after the Emperor.‡

Most of the new constellations of the northern heavens were formed and named by Hevelius, in the sixteenth century. The principal groups near the south pole, which never become visible in Europe, were named by the early navigators to the south seas;

* Another Latin word for "swan." It is of uncertain origin, as we cannot accept the conjecture that it is from the Greek ὅλος (whole), because it is *all* white.

† "De Divinatione," ii, 47.

‡ "Georgicon," i, 33-35.

and the credit of so describing the positions of the principal stars in these, that the constellations could be clearly defined and mapped down on celestial charts and globes, is due to Peter Keyser, the chief pilot of a Dutch fleet of four ships which sailed to the East Indies in 1571. Keyser himself died at Java on the voyage; but the fleet, with the exception of one ship which had to be abandoned and burnt, returned to Holland in 1577, and Keyser's papers and observations came into the possession of his old tutor, Plancius, by whose means it was that the constellations in the extreme south of the heavens came to be thus laid down. They have ever since been generally accepted, which cannot be said of all later additions to them, particularly those formed by Lacaille, some of which have been thought to be inappropriate besides being too numerous.

And now with regard to the nomenclature and comparative magnitudes of the stars in the constellations. Most persons are aware that the originator of the convenient system now in universal use of distinguishing the principal stars in each by a Greek letter before the name of the constellation in the genitive case, was Bayer, of Augsburg, who published, in 1603, a series of maps of the constellations in which the stars are thus indicated. But it is not so generally known that Alexander Piccolomini, Archbishop of Siena, in Tuscany, made a similar suggestion about fifty years before Bayer, publishing at Venice, in 1559, a little book in which rough diagrams of some of the constellations are given, in which Latin letters are affixed to the brightest stars in these. Some have supposed that Bayer endeavoured to make the order of the letters correspond to that of the brightness of the stars in each constellation; and various unfounded conjectures have in consequence been made as to supposed changes of magnitude of some of the stars since his time, it being clear in many cases that no such correspondence now holds. But in reality Bayer made no such attempt, which would have involved much more accurate and laborious determinations of relative magnitudes than formed any part of his scheme. He simply accepted the old division of the stars in each constellation into orders of magnitude, and in these divisions made the order of the letters rather correspond to the form of the figure supposed to be represented by the constellation than to the smaller gradations of brightness in each. There is, therefore, a rough but not an accurate correspondence between the order of the letters and that of the brightness of the stars

which they represent; and the erroneous idea alluded to received apparent confirmation from the fact that he generally indicated by α, the first letter of the Greek alphabet, the one brightest star in each constellation. In his time not enough was known of the constellations near the south pole to justify him in affixing letters to the stars in them at all; this was done long afterwards by Lacaille when making his observations at the Cape of Good Hope; in doing so, he endeavoured as far as possible to make the order of the letters and of the brightnesses correspond with each other.

This brings us to the consideration of accurate determinations of stellar brightness, a subject of great importance in its bearing upon the changes of these, and which has lately received very special attention. Before referring, however, to the improved methods of doing this, which have been recently introduced, it will be proper to mention the skilful and laborious determinations of these (carrying the old method of comparative estimation to the highest degree of exactness of which it is susceptible) made in modern times.

In the year 1836, the illustrious Dr. Argelander, then director of the observatory at Helsingfors, in Finland, was made Professor of Astronomy at Bonn, and director of the observatory there. He took up his residence at that place before the instruments for use at the observatory were made; and, as the most profitable way of spending his time under the circumstances, devoted himself to a careful examination, from a bastion near the Rhine, of the stars visible to the naked eye, by which he was enabled to tabulate their comparative amounts of brightness at that epoch with great accuracy, though he did not attempt to go beyond the old system (introduced by Ptolemy) of notation of magnitudes, which was in fact equivalent to dividing each separate unit of magnitude into three; stars, for instance, between the second and third magnitudes being called 2·3 or 3·2, according as they were nearest the second or third. The "Uranometria Nova" (as it is called) thus formed by Argelander, was published in 1843, and remained for many years the authority for reference on the subject. With the aid of his assistants, when installed at the Bonn Observatory, he afterwards made that famous examination of the magnitudes of telescopic stars down to the ninth magnitude, the result of which is well known to all astronomers under the name of the *Durchmusterung*.*

* *i.e.*, Survey. It is commonly referred to by German astronomers simply as "D.M."

We must now speak of the labours of another astronomer in this department of research, who in some respects may be said to have made the southern heavens his own, subjecting the stars in that hemisphere (including all that are visible to the naked eye, and down to those of a magnitude fainter) to an examination both of place and especially of brightness of a far more accurate nature than had ever been applied to them before. It will be obvious that we are referring to Dr. Gould,* who published in 1879, under the title of the "Uranometria Argentina," the results of the observations in question, the fruits of seven years' labour carried on with the aid of assistants at the observatory established by the Government of the Argentine Republic, at Cordoba. This valuable catalogue included not only all stars down to the seventh magnitude in the southern hemisphere, but also those in the northern hemisphere which are situated within ten degrees of the celestial equator, thus affording a means of comparison with the observations made in Europe and North America. The magnitudes of the stars were estimated (a special contrivance being made use of to secure accuracy and uniformity of system in this) to tenths of the differences separating the conventional units of magnitude.

But, according to the general order of things, the results of observations obtained by the eye only are now being superseded by determinations in which mechanical methods are employed, susceptible of a much higher degree of accuracy. Two astronomers have recently acquired celebrity in this field of research, and to both was last February jointly awarded the gold medal of the Royal Astronomical Society of London to mark its appreciation of the great value and importance of their work: we speak of Prof. Pickering, of the Harvard College Observatory, Cambridge, U.S., and Prof. Pritchard, of our own University of Oxford. Although, however, these were the first to carry out systematic determinations of the comparative amounts of the light of the stars by instrumental photometry, some earlier attempts had been made and applied to a certain number of objects, on which a few words may be said.† Practically the first of these was that of Sir John Herschel, whilst making his observations at the Cape of Good Hope about fifty

* Born at Boston, U.S., in 1824, graduated at Harvard College in 1844, and at Göttingen in 1848.

† A very interesting article on this subject, under "Photometry," has been contributed by Professor Pritchard to the ninth edition (now in course of publication) of the "Encyclopædia Britannica" (vol. xviii).

years ago. By the aid of appliances of the simplest kind, he deflected the light of the moon (by means of the internal reflection of a rectangular prism) through a small lens of very small focal length, so as to form a sort of artificial star in its focus. He contrived a mechanical means of moving this, so as to bring it into the same line of sight as any actual star the amount of light of which he proposed to measure. Another contrivance enabled him to move this microscopical lunar image to different distances from the eye until its light was sensibly equal in amount to that of the star to be compared. The distance found to be necessary for this purpose furnished the means of determining numerically the comparative amounts of light of different stars. Meanwhile Dr. Seidel, of Munich, by the aid of a contrivance somewhat similar in principle (constructed for him by the famous instrument maker, Steinheil), made also a considerable number of determinations of comparative stellar brightness. A different and in some respects improved method was afterwards employed by Dr. Zöllner, but its use was encumbered with difficulties of its own, although some valuable results were obtained by it. Availing himself of the well-known principle, the law of double refraction, he introduced a polarizing apparatus, and by its means was able to reduce in any requisite measurable proportion the amount of light in one of the two objects to be compared, so as to produce equalization. The one thus treated was, in fact, the deflected and reduced image of a lamp; but the difficulty of maintaining the constancy of its flame was great. The principle of this method was used in an improved manner by Prof. Pickering, of Harvard College. He deflected the light of the pole star or some other star near the pole (such as λ Ursæ Minoris) by means of prismatic reflection, and contrived to form an image of it contiguous to the image of any other star selected on the meridian; the equalization of the lights was then effected (as had been done by Zöllner) by the intervention of a polarizing apparatus. Other forms of stellar photometers on virtually the same principle were devised by him, and are described in the eleventh volume of the Annals of the Harvard College Observatory. It should here be remarked that whereas mere estimations of relative brightness of stars by the unaided eye could never lead to numerical comparative results, it is otherwise when instrumental appliances are resorted to. As a consequence, it became desirable to accept some ratio to express the different amounts of light

between each successive unit of stellar magnitude; and a number (its logarithm is exactly 4) a little exceeding $2\frac{1}{2}$ has been generally adopted as a convenient one, agreeing as it does better than any other with the light ratios (by no means equal) existing between the hitherto received orders of magnitude obtained by eye-estimation before instrumental photometry was invented, which it was desirable to disturb as little as possible.

A new principle was introduced into stellar photometry by Prof. Pritchard, and has been ably and laboriously carried out by himself and his assistants at the University Observatory, Oxford. This is the use of the wedge photometer, constructed on the principle that the absorption of light in passing through a uniform medium depends, *cæteris paribus*, upon the thickness. Taking advantage of this, "a thin wedge," says Prof. Pritchard, "is constructed of homogeneous and nearly neutral tinted glass, through which the images of stars formed in the focus of a telescope are viewed. Simple means are contrived for measuring with great exactness the several thicknesses at which the light of these telescopic star-images is extinguished. In this way the light of any star can be readily compared with that of Polaris (or any other selected star) at the moment of observation, and thus a catalogue of star-magnitudes can be formed;" or rather, we may now say in this way a catalogue of star-magnitudes *has been* formed. The "Uranometria Nova Oxoniensis," published about the end of last year (1885), furnishes a complete catalogue of stellar magnitudes, accurately and instrumentally determined, for all the stars in Argelander's "Uranometria Nova" which are north of the equator, and for a few others beyond.

As there has been some discussion as to which of the stars is the brightest in the northern hemisphere, our readers may be interested to know that Prof. Pritchard's measurements have decided in favour of Capella, the principal star in Auriga, which is now at any rate slightly brighter than Vega or α-Lyræ. (We say "now at any rate," because there is reason to believe that, besides the regular or irregular periodical variations of brightness, to which many of the stars are subject, some also undergo very slow and long-continued changes, which in the course of time alter their relative magnitudes to a small extent.) But it is well known that two stars in the southern hemisphere are brighter than either of these. These are Sirius, the principal star in Canis Major, the brightness of which usually considerably

exceeds that of any other star in either hemisphere, and Canopus or *α* Argûs. Unlike Sirius, the latter has for some time ceased to be visible (in consequence of the precession of the equinoxes) in any part of Europe, though it used to be so within historical dates, and Eudoxus is said to have observed it from the top of a mountain in Caria. Another star which is subject to very remarkable and mysterious changes of magnitude has on more than one occasion increased so much in brightness as to exceed all others, excepting only Sirius. Halley was the first to suspect the existence of variations in this star, which is in the same constellation as Canopus, and is called *η* Argûs. When observing at St. Helena in 1677, he determined it to be of about the fourth magnitude. Lacaille observed it at the Cape of Good Hope in 1751 ; it was then so bright as to be rated of the second magnitude, so that the fact of change was placed beyond a doubt. The variations since then have been found to be of an exceedingly irregular character. In 1838, and again in 1843, it was so bright as to surpass all other stars excepting Sirius. After the latter date it slowly but steadily diminished in brightness, and ceased to be visible to the naked eye in 1867. In consequence of a letter addressed by the writer to the "Observatory" for last February, Mr. Tebbutt, of Windsor, New South Wales, examined its light carefully in March, and found that its magnitude did not exceed the seventh. It has, in fact, remained practically about the same during the last ten years, though exhibiting fluctuations of a small amount, an account of which Mr. Tebbutt has communicated to the Royal Astronomical Society in a paper published in their "Monthly Notices" for last May.

Of course it is beyond the scope of the present short article to enter at any length into the subject of variable stars, one of the most interesting in observational astronomy. But the important bearing that stellar photometry has upon it naturally calls for this reference to the changes of light in the above star, which are so remarkable on account of their apparent irregularity. In this, as in all other scientific subjects, it is increasingly felt that real progress can only be made by systematic study applied to all possible cases, not by isolated and occasional attention to a few. All honour, then, to those who are devoting years of persevering thought and labour to further extension of our knowledge of the phenomena of the heavens and of the distant bodies of the universe.

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HISTORY AND PRESENT POSITION OF SHORTHAND.

DURING the year 1887 it is intended to celebrate the tercentenary of modern shorthand and the jubilee of phonography. The circumstance is one that gives special interest to the history of an art which plays so important and so useful a part in our modern civilisation.

The learned Funccius unhesitatingly records Adam as the first stenographer. Without asserting for the art an antiquity so remote, and without presuming to say who was the first to adopt such a method of saving time, it may safely be said that stenography, like most liberal arts, has been known for long ages. In every nation sufficiently advanced to require the aid of written documents to any considerable extent, the elaborate forms of the earliest writing will gradually give place to a simpler and more fluent style. This we may trace in the history of Egyptian writing, in which the pictured accuracy of the hieroglyphics gives place, for the affairs of common life, to the more cursive forms of the hieratic and the demotic characters. We may see the same transition in the Chinese symbols. It is equally apparent in the history of the writing in our country, as may easily be seen on comparing a page of the running-hand of the present century, in which the pen is scarcely lifted from the page during the formation of a line, and a mediæval MS., in which every letter is separate and kept rigidly apart from its fellows.

The indications respecting Greek shorthand are exceedingly vague. It has been contended that the first to adopt shorthand for the recording of oral speech was Xenophon, the famous Grecian general and philosopher. This belief is founded on a passage (which will scarcely bear the strain placed upon it) in Diogenes Laertius, who relates that Socrates meeting Xenophon in a narrow lane, the Silenus-like philosopher put his stick across the roadway and barred the passage. Having thus prevented Xenophon from going by, he asked him where all kinds of necessary articles were sold. Having received answers to several queries of this nature, Socrates asked to be told where men were made virtuous. Xenophon confessing that he knew no manufactory of this sort, Socrates said, "Follow me, then, and learn." He thus became a disciple of the great Greek

thinker, and was the first person who took down conversations as they occurred, and published them amongst men, calling them "Memorabilia." There is in the Vatican Library a copy of the works of Dionysius the Areopagite, and in the Bibliothèque Nationale, at Paris, is, or was, a book of the writings of Hermogenes and other rhetoricians. The tachygraphy in which they are written has been elaborately examined by Kopp. It contains, amongst a variety of other matters, two fragments of St. Athanasius and St. Basil on the Incarnation. The Parisian MS. was formerly assigned to the thirteenth century, but Kopp considers that although it contains some later notes, the bulk of it was written in the ninth century. He decides this point from a palæographical examination of the style in which it is written. Montfaucon called them rhetorical notes, for no better reason than because he found them in a work on rhetoric, so that, as Kopp observes, he might have called them military figures if he had found them in a treatise of war. His engraving of them is not to be relied upon. The Greek tachygraphers frequently mixed the notes with the common abbreviations, sometimes using one and sometimes the other, and a few of the tachygraphic marks were adopted in common writing. The shorthand alphabet seems to have been based upon the capital letters, receding gradually from the uncial forms by the mere effort of quick writing. Very few of the letters are identical in form with the later cursive writing. Theodoret tells us of Protogenes that he became a schoolmaster, and instructed youth to write with speed, dictating to them the Psalms of David. Kopp remarks that many of the now extant books in Tironian notes contain the Psalms. It is a very common opinion that the Romans received the art of shorthand from the Greeks. The resemblance between them is partly accidental, both being formed from the capital letters, which have considerable likeness. There are essential differences between the two, the terminations being different, and in cases where the marks are nearly identical the meanings attached to them are different. The Greek swift writers are called both tachygraphers and oxygraphers, the last name being derived either from the acute and angular forms of their characters or for the quickness of their writings. Amongst the Romans the indications of the use of shorthand are more numerous. It had reached a pitch of perfection in which verbatim reporting was at least regarded as a possibility. Thus Manilius tells us of "a swift writer, who uses

a letter for a word, who can outstrip the tongue, and take down the speaker's long sentences by new abbreviations." Martial also claims for the hand the power of outstripping the tongue :—

> "The swifter hand doth the swift words outrun,
> Before the tongue has spoke the hand hath done."

Ausonius, tutor of the Emperor Gratian, addresses to his clerk a complimentary epigram, to the effect that he impresses on the waxen tablet the feelings of the breast almost before they are uttered. The entire poem has thus been translated :— "Fly, young and famous stenographer ! Prepare the tablets on which thou dost express, with simple points, entire discourses with as much facility as others can express a single word. I dictate volumes, and my pronunciation is as rapid as the hail, yet nothing escapes thy ear, though the pages fill not. Thy hand, of which the movement is scarcely visible, flies upon a surface of wax, and though my sentences are diffuse and intricately constructed, thou dost embody my ideas on thy tablets before they have passed my lips. Is it possible that I cannot think as rapidly as you write ? Tell me, then, since you outstrip my imagination, tell me, I say, who has betrayed me ? Who has revealed to thee my thoughts ? What theft has not thy hand committed on my mind ? To what new order of things is it owing that the words my mouth have not expressed shall already have reached thy ears ? No art, no precept, surely could give thee this talent of abbreviation, for no hand has the velocity of thine ! For this gift thou art doubtless indebted to nature and the gods ! They only could permit that thou shouldst know what I think before I speak, and that thy will should spontaneously co-operate with mine."

The terms *nota*, *notæ*, had an extended signification, sometimes indicating mere contractions, and at others arbitrary signs. Occasionally, too, there is some confusion between quick writing and secret writing. Generally, however, the context will clearly show whether ordinary writing or shorthand characters is intended. Julius Cæsar and Augustus are both sometimes placed amongst the cultivators of stenography, but it seems rather a system of cryptography they used, the object being not swiftness but secrecy. From Suetonius we learn that Julius Cæsar employed cipher writing in his letters, substituting the fourth for the first letter. Plutarch, in his life of Cato, states that one speech only of those he delivered has been preserved. The

manner in which this was recorded, he says, was this: Cicero selected certain persons who were quick writers, and taught them certain signs which in small and short forms had the power of many letters. These persons he placed at intervals in the Senate House to take down Cato's speech. "For," adds Plutarch, "the Romans did not then possess shorthand writers, but then began certain rudiments of that practice." The passage, read by the light of subsequent events, has been considered to refer to the particular system known as the Tironian notes. The chancellors or public scriveners of the French kings followed very closely in all things the methods of the Greek and Roman notaries. It is not, therefore, improbable that they received their knowledge of the Tironian notes as an inseparable portion of the notaries' office. The first who speaks of Tiro as the author of this system of brief writing is either Eusebius (A.D. 325) or Jerome. The writer or abridger of the Chronicon says, "M. Tullius Tiro, the freedman of Cicero, who first used notes." The completest notice of the Roman shorthand is that given by St. Isidore of Seville, who flourished in the seventh century:—"Ennius first invented 1,100 common notes. The method of using them was for the *librarii*, many of them standing up at the same time, to write down what was spoken in public or at the bar, having divided their parts among them, how many words each should take down, and in what order. The freedman of Tullius Cicero first introduced or used notes at Rome, but only for the prepositions. After him Vipsanius Philargyrus, and Aquila, the freedman of Mæcenas, added various notes. Then Seneca, having digested and abridged them, and increased their number, completed the work as far as 5,000—and they were called notes (*notæ*), because they denoted words or syllables by characters before fixed upon, and recalled them to the knowledge of the reader, which they who have learned are now properly called *notarii*." The account in Isidore is patched up from passages in Augustine, Plutarch, and Eusebius. Some confusion has arisen from different ways of interpreting the passage. Kopp, however, does not believe that the now extant Tironian notes are the invention of the freedman of Cicero, or of Seneca. The Hesse-Cassel MS. appears to have been baptised with the names of Tiro and Seneca, owing solely to the influence of St. Isidore.

Marcus Tullius Tiro was at once the servant and the friend of Cicero. He was at Cilicia when his master was governor there,

and returning home fell ill on the way. Cicero was obliged by the urgency of his affairs to proceed to Rome, but wrote to Tiro that he felt he was doing wrong to leave him, and begged that he would spare no expense for the recovery of his health. When he came to Rome he received his freedom and a domain upon which to live. Tiro is believed to have been engaged upon a tragedy, and certainly wrote several books, none of which have come down to us. Amongst them was a life of the great orator, and a collection of his good sayings. Many of Cicero's letters are addressed to Tiro, and afford a pleasing picture of the affectionate feeling that existed between them. It is to the care of Tiro that we owe the preservation of the letters which throw such an interesting light upon the character of the great Roman. Whoever may have been the originator of the system, there are many MSS. in which Tironian notes are found. One of these, the Breviary of Alaric, preserved at Munich, dates from the sixth century. The margins have many notes in this system. They appear to have been frequently employed for this purpose. The printed collection, by Gruter, contains sufficient internal evidence to show that it could not all date from the age of Cicero, as it contains phrases of later times. On the other hand, there are many terms relating to the mythology and manners of the Romans, which could have had very little value for the tachygraphers of a later age. The Tironian books have evidently, at whatever date transcribed, been compiled in very different ages. They certainly did not spring full-born from the brain of Tiro, but have been evolved by the gradual and almost imperceptible labours of many. Besides these Tironian lexicons, there are copies of the Salic law, and various charters and diplomas, but none earlier than the sixth century. One test of the antiquity of the notes is that they appear to be formed from the majuscule letters, which would certainly not have been the case if the more rapidly written cursive forms had then been in use. These small letters were in use in inscriptions in the fourth century. The notes are joined together in a different manner from that used in cursive writing. The system has undoubtedly an alphabetical basis, but the abbreviations are carried to an extent that sometimes gives the combinations the aspect of being purely arbitrary characters. Thus the note read *licet*, when analysed, is seen to be composed of *L* and *et*. The Tironian notes are not easily joined together. They are rigid in form, and very slight departure from accuracy serves to mislead

entirely. The distinction between the characters for *talis* and *qualis* is something less than the difference between an acute and right angle. The period made a great deal of difference. Thus—·h *ager*, ·h *amicus*, ḣ *arbiter*, h· *ante*, ḥ *animus*. Sometimes the Tironian and common contractions agree in a manner which is suggestive of conveyance. Porta says that the Romans denoted boyhood by the Greek Λ. This is probably a mistake for the Tironian note for *pueritia*, which, if hastily written, might easily be mistaken for the lambda. Private letters, first draughts of important documents, and, in fact, a great deal of the literary matter of classical ages, were written simply upon waxed tablets, with the stylus, only the more elaborate and important documents being committed to the expensive custody of ink and parchment. The division of labour was well understood by the ancients in some departments of industry. Alike in Athens and Rome there was a distinction between the trachygrapher and calligrapher. In Rome those who took down that which was spoken were the *notarii* or *exceptores*—the note takers—whilst the ordinary scribes were known as *librarii*. Amongst the few persons named as experts are Cornelius the Deacon, and St. Genesius. St. Genesius belonged to the town of Arles, and lived in the third century. He was a public notary, and famed for the rapidity with which he wrote shorthand, so that it was said of him that his hand was as swift as his speech. The colleague of Diocletian came to Arles to publish a decree against the Christians. It became part of the official duty of Genesius to transcribe this bloody edict upon the public registers. Filled with horror at the thought of being instrumental in shedding the blood of his co-religionists, he refused to have any part in its enactment, and fled to avoid the fate that this conduct might be expected to bring upon him. After wandering through many places, in order to avoid his persecutors, he at length fell into their hands, and was beheaded on the banks of the Rhone. The *notarii* were also employed in recording the proceedings in the court of justice. They were afterwards called *exceptores*, and were occasionally employed in making persons' wills. These were freemen, but many of the wealthier Romans kept slaves whose duties were those of a secretary, or rather of a shorthand clerk, taking down from dictation the words of their masters. The elder Pliny, when travelling, carried with him a *notarius* to take down what he might desire. It has been conjectured that the Tironian notes do not take their name from the famous

slave, but mean those which were taught to a scholar. A method of quick writing was certainly part of the educational course in the later era of Rome, for Prudentius speaks of a teacher "surrounded by many children, as a master of letters," teaching them to take down many words in brief notes, "to follow quickly what was spoken," and to "mark down words with fictitious signs." This schoolmaster was the martyr Cassianus, who lived in the reign of Decius or Valerius. Prudentius saw the picture of his martyrdom in a church, and has recounted the story of it in one of his hymns. Cassianus was a stern master to his pupils, who bore him no goodwill, and when the persecution raged against the Christians they denounced him to the authorities as one of that then hated sect. He was placed in the midst of his scholars, who had full liberty to wreak their vengeance upon him in any manner they pleased. He was bound, stripped naked, and tortured to death—the boys striking him with their tablets, and stabbing him with the sharp points of their styles, until life ran from him at a thousand pores. His festival is appointed in the Roman calendar for the 13th of August. A further proof of the presence of shorthand in the educational course has been adduced from the fact that Fulgentius divides the early teaching of children into *abecedaria* and *notaria*. According to a writing attributed to St. Eligius (A.D. 666) Pope Gregory dictated his messages to scribes who took them down in Tironian notes.

The use of the Tironian notes continued in French charters until the middle of the tenth century. They then fell into such disuse that even the learned had lost the knowledge of their meaning, so that a Latin Psalter written in this style was described by the custodians of the Strassburg Library as an Armenian Psalm Book. Since the study of them revived, many have asserted that they are simply arbitrary signs, without perceiving their alphabetical basis. Thus, in ordinary contractions, R.P. stand for *respublica*. The Tironian mark can be analysed in the same way. Carpentier thought it was a purely arbitrary system, having no relation to spoken language; and that, for instance, χ would signify *basileus* to a Greek and *rex* to a Roman.

Titus, the Emperor, in his youth was remarkable for his love of learning, and was equally proficient in the arts of war and peace. In addition to his powers of versification and oratory he was "very quick as a shorthand writer." His skill in writing was

such that he would jestingly observe to his secretaries that he was admirably qualified for forgery. The first to print the Tironian notes was Trithemius, who died in 1516. Since his time Porta, Gruter, Mabillon, Carpentier, Montfaucon, Toustin, Gatterer, and Kopp have studied them, the last named being incomparably the greatest authority on the subject, which he has examined at great length, and with a wealth of classical and paleographical knowledge. It has often been said that Gruter's collection included 26,000 notes. The real number is 13,134. Kopp has given a sketch of the literary matter known to exist in the Tironian notes. First come copies, in various stages of completeness and antiquity, of the collection or lexicon of the notes themselves, the oldest being that in the library of Hesse-Cassel, and attributed to the eighth or ninth century. There are several psalters dating from the seventh century, some of them containing other theological matters. There is in the French Library a volume of the diplomas or charters of King Louis the Pious. They were taken down in notes from the dictation of the chancellor, and then transcribed in the common writing of the period. There is also in the French Library a copy of Hyginus on the Stars, and in the Vatican something of S. Isidore's.

Shorthand, extinct or lost to sight in the Middle Ages, had its new birth in the England of Elizabeth. The proto-stenographer of modern times was Dr. Timothy Bright, who was a clergyman as well as a physician. It was in the memorable year of the Armada that there came forth a small book with this title :—

> Characterie. An arte of shorte, swifte, and secrete writing by Character. Inuented by Timothe Bright, Doctor of Phisike. Imprinted at London by I. Windet, the Assigne of Tim. Bright, 1588. Cum priuilegio Regiae Maiestatis. Forbidding all others to print the same.

This book was dedicated to the Queen, and the author's explanation establishes the interesting fact that modern shorthand owes its inspiration to the Roman stenography. "Cicero did account it worthie his labor, and no less profitable to the Roman common weale to inuent a speedie kinde of wryting by character. . . . Upon consideration of the great vse of such a kinde of writing I have inuented the like: a fewe characters, short and easie, every character answering a word;

My inuention meere English, without precept or imitation of any. The uses are diuers: short that a swifte hand may therewith write orations, or publike actions of speach, vttered as becometh the grautie of such actions, verbatim. Secrete as no kinde of wrytinge like. And herein (besides other properties) excelling the wryting by letters and alphabet, in that nations of strange languages may hereby communicate their meaning together, though of sundrie tongues."

The only known copy of Bright's "Characterie" is now in the Bodleian Library. It is not very easy to give an account of his method, which may perhaps be best described as a collection of arbitrary signs arranged in alphabetical order, and having a certain amount of alphabetical foundation. Thus all words beginning with A were represented by a perpendicular stroke | , and the difference between one word and another was indicated by an addition to the base. A faint glimmer of the phonetic idea is evidenced by the use of the same form for C, Q, and K, for I, J, and Y, for U, V, and W, and also in the remark that "a word of the same sound, though of different sense, is written with the same, as 'faste' for abstinence from meat, for 'swiftness' and for 'sureness'; so if it is much differ not." Great dependence was placed upon the context and grammatical structure. The characters were 537 in number, and, of course, each had to be learned by heart, or rather by eye. A negative meaning could be given to any character by a stroke across it, whilst a dot on the right hand side of a character was used as a mark of the plural. Th e system, although cumbrous, was not altogether useless, and there is evidence that before the publication of his Characterie, Bright was known as a stenographer. In the British Museum there is a letter recommending him to Lord Burleigh, and this includes a specimen of his shorthand, varying in some degree from his published system, and certainly much neater in appearance than the specimens in his book. This document belongs to the year 1586.

Bright's claims as the first English shorthand writer are not much greater than those of Peter Bales, a clever writing-master, some of whose quarrels are embalmed in the classic pages of D'Israeli. This accomplished calligrapher wrote in Latin, within the compass of a silver penny, the Lord's Prayer, the Creed, the Decalogue, two prayers, "his posie, his name, the daie of the month, the year of our Lord, and the reigne of the Queene," and this *multum in parvo* was worn in a ring by Elizabeth. In 1590,

Bales published "The Writing Schoolmaster," including a system of tachygraphy, which the author declares he mastered by one month's study and one month's practice. In this system, also, the principle is that of ideography, a letter for each word. It is impossible to suppose that these systems could realise the claims made for them, but they were the beginning of a forward movement which is only now reaching its full development.

The seventeenth century was prolific in shorthand systems, but comparatively few of these are really important. John Willis, B.D., published in 1602 his "Art of Stenographie; or, Short Writing by Spelling Characterie," which is regarded as the first attempt at a genuine alphabetical system. His predecessors depended upon having a distinct character for each word, that is of representing ideas, whilst he, by adopting the orthographic basis, led the way to the representation of sounds which now forms the basis of all the modern systems that have come into extensive practice. His book went through at least a dozen editions. In 1618 appeared Edmond Willis's "Writing by Character," which is worthy of mention, not on account of its intrinsic merit, which is slight, but because it led to the writing of a volume entitled "Characterie," which was never printed, but still remains unpublished amongst the Sloane MSS. The unknown writer has anticipated some of the principles which in the present age have contributed to the success of phonography. The early shorthand writers did not display any great amount of originality, and those who have critically examined the earlier systems find them to be, to a large extent, copies with just enough of variation to justify a claim to authorship. Edmond Willis varied the alphabet of John Willis; this was modified by William Cartwright, whose "Semography," published in 1642, was "Conveyed" by his nephew, Jeremiah Rich, whose "Charactery," 1646, "Semigraphy," 1654, and "Pen's Dexterity," 1659, became very popular. The Psalms and the New Testament were issued in Rich's system, and the Bible and Prayer Book in a further adaptation by William Addy and Samuel Botley. But Rich's system owed its long-continued popularity and usefulness to Dr. Philip Doddridge. That learned Nonconformist learned shorthand at the age of 14, and as Rich's system was intended chiefly for sermon-taking—having 300 arbitraries adapted for the purpose alone—it may have suited the serious character of the boy. The Nonconformists were anxious to carry forward the tradition of a learned ministry

which they had inherited from the Puritans, and, as the national universities were closed to them, they had to form academies for the training of candidates for the pastorate. In 1729 Doddridge became the principal of an institution of this nature, and he made great use of shorthand as an educational agency. One of the first things the pupil was expected to learn was Rich's shorthand with Doddridge's improvements, which consisted not in an alteration of the alphabet, but in the simplification of the rules, and in a reduction of the number of arbitraries. The students were recommended to have the Bible in original tongues, interleaved for the purpose of stenographic annotation. They were expected also to take notes of the lectures delivered in the academy. Doddridge could hardly have produced his vast works but for the facility given him by the use of shorthand, and at his death his pupil, Job Orton, another enthusiastic stenographer, published several from his notes. Orton corresponded in the system, and frequently put a postscript—"Blessed be God for shorthand." Doddridge's plan of education by shorthand had a great influence upon the succeeding dissenting academies at Daventry, Wymondley, Warrington, and Manchester. The "Old Dissent" had for its heirs Unitarianism and Modern Congregationalism, and Rich's system was used in our own days by the Rev. Thomas Binney; and the Rev. William Gaskell, who died in 1884, preached his sermons from notes made in the same system which he had learned in his student days at Manchester New College fifty years before. One of Doddridge's friends was Secker, Archbishop of Canterbury, to whom are due the shorthand report of the debates in the House of Lords, 1735–43, and Dr. Isaac Watts, who favoured Metcalfe's Radio-stenography. Richard Baxter was another proficient in the art of shorthand. Dr. Westby-Gibson rightly says that "if Doddridge had not in some sense popularised Rich's old system of "Semigraphy" for the divines and scholars of the last century, it would have assuredly died out before the more artistic systems of Dr. Bryom, 1767 (existing in manuscript and taught a generation before); Joseph Gurney, 1773 (an improvement on Thomas Gurney's revival of Mason's system); Dr. Mavor's, 1780, and Samuel Taylor's, 1786." These names carry forward the history of shorthand to the advent of phonography. Byrom gave the art a more philosophical basis and a clearer and more scientific expression. Byrom having learned Rich's system, soon devised his own and taught it to

many pupils. Lord Chancellor Pratt and the Rev. Charles Wesley were amongst the many who used it. Byrom's shorthand diary is a capital picture of the literary life of the last century in its earlier stages. Gurney's system is still exclusively used in reporting the proceedings of Parliamentary Committees. Mr. Isaac Pitman, when a teacher in a British school, learned a modification of Taylor's system. The old stenographies were all expensive, and he thought that a cheap edition would extend the use of shorthand. He drew up a small pamphlet with that intention, but on the recommendation of Mr. Bagster, the publisher, he attempted a fresh system, and the improvements so made constituted "Stenographic Sound Hand," a fourpenny pamphlet issued in 1837. The title was changed to "Phonography" in 1840. The attempt to popularise shorthand was undertaken with missionary zeal. When lecturing in Manchester, the method of lithography was explained to him, and the first number of the "Phonographic Journal" was issued in January, 1842. Several circumstances helped on the spread of phonography. Education was extending, and there was a larger population capable of profiting by it; lithography offered a cheap means for the manufacture of instruction books, and the penny post afforded a ready method for dissemination. Moreover, the rise of the newspaper and periodical press created a necessity for the existence of a body of skilful reporters. Incidentally phonography has had the effect of familiarising thousands with the elements of phonetics, and has thus had its share in the progress of philology.

In England the shorthand most generally in use is the phonography of Isaac Pitman, and it is likely to have an increasing share of favour; those of Taylor and Gurney have also a considerable number of followers. The use of shorthand is of course indispensable for newspaper work. It is also extensively employed in commercial and legal business, by literary men, and for the purposes of correspondence or the keeping of diaries. A knowledge of it is regarded as essential to the completeness of a commercial education, and it figures in the examination syllabus of the Society of Arts. England is still one of the few countries in which no provision is made for official reports of Parliamentary debates. In France each branch of the legislature has its staff of stenographers. The systems chiefly in vogue are those of Coneau de Prépéan and Hippolyte Prévost, each of them modifications of Taylor. In Germany

the favourite system is that of F. X. Gabelsberger, which is a *script* system, differing in that from all our English stenographies, which use only geometrical forms. Stolze runs Gabelsberger rather close, and Arends is the next most popular. Either Gabelsberger and Stolze, or both systems, are officially recognised in Germany, Austro-Hungary, Russia, Greece, Norway, Servia, Sweden, Switzerland, and other parts of the Continent. In the United States phonography, either in the author's own system or in some modification of it, is the stenography most generally used. Probably in no country in the world is there a greater employment in shorthand.

Such in the briefest outline is the progress of shorthand. To what degree of perfection it had reached in the ancient world is hard to decide, but we can watch the evolution of modern shorthand in the last three centuries from the complicated and cumbrous methods of Bright and Wilks growing gradually simpler by the labours of Mason, Byrom, Gurney, Taylor, and Pitman. What further developments remain is impossible to tell, but at present shorthand is the valuable and invaluable aid of literature, law, politics, and social reform. It is in itself an educational influence, and it is an aid in acquisition of knowledge. From obscure and uncertain beginnings shorthand has developed into an art which is the ally of progress and civilisation—an art by which the hand keeps pace with the busy brain, and by which the winged words of the orator are preserved, as the glowing periods fall from his lips in the fervour and strength of spontaneous eloquence.

WILLIAM E. A. AXON.

Note.—For the literature of the history of shorthand, the following may be consulted:—1. Geschichte und Literatur der Geschwindschreibkunst. Von Dr. Julius Woldemar Zeibig Zweite Auflage. Dresden, 1878. 2. Marcus Tullius Tiro, the first shorthand writer, by Paul Mitschke. Bath, 1875. There is also an American translation of this work. 3. [Carpentier] Alphabetum Tironianum. Paris, 1747. 4. Tachygraphia Veterum exposita ab Ul. F. Kopp. Mannheim, 1817. 5. Historia de la Taquigrafia de los Griegos y Romanos, par Balari y José Jovany. Barcelona, 1875. 6. "Phonetic Journal" (originally "Phonographic Journal"), annual volumes, 1841 to 1886. This contains a mass of material for stenographic history. 7. Teaching, Practice, and Literature of Shorthand, by Julius Ensign Rockwell. 2nd Edition. Washington, 1885. There are "Histories" in English by Lewis, Pitman, Levy, and Anderson, but none of these can be regarded as adequate. Mr. J. E. Bailey, F.S.A., and Dr. John Westby-Gibson have each large collections on this subject; and Dr. Gibson hopes to have his history ready for the tercentenary proceedings.

ASTRONOMICAL PHOTOGRAPHY.

SCARCELY half a century has elapsed since the new art of photography was definitely brought before the world by the entry into partnership of Daguerre and Isidore Niepce, and their attempt to form a company to work their discovery. Great as was the admiration which the first results excited, and high as were the hopes then raised of further triumphs, it may safely be asserted that the subsequent history of photography has not disappointed the noble promise of its birth; whilst in some directions it has achieved successes beyond even anything that had been anticipated in the wonder and delight caused by its earliest achievements.

And nowhere has photography proved more useful than in the domain of astronomy. Again and again has the observer, after pushing direct observation to the utmost limit, found that photography was able to carry on the work for him when the eye alone could do no more. And at the present time it seems to promise to us in the immediate future an extension of the bounds of our information far beyond anything which direct observation could ever have secured.

Photography has passed hitherto through three well-defined stages. The first was that of the Daguerreotype, in which a solid metallic surface was rendered sensitive; the second, the collodion process, in which a film of collodion was made the vehicle of the sensitive salt; and the third, in which gelatine has taken the place of collodion. From an astronomical point of view little interest attaches to the Daguerreotype; it was so soon replaced by the more convenient and sensitive collodion processes. Yet it should not be forgotten that so far as we know the first astronomical photograph was a Daguerreotype—Dr. Draper having succeeded in photographing the moon in the year 1840, within a year of the publication by Daguerre of the details of his process. And Daguerre himself seems to have anticipated that his invention would prove a useful ally to astronomy, for he made several experiments, though without success, in the same direction. The Daguerreotype has since been employed in one very important astronomical work. The French expeditions sent out in 1874 and 1882 to observe the two recent

Transits of Venus used it for the reason that the image was formed upon the actual metallic plate itself, and was therefore not liable to those distortions which may arise in the collodion and gelatine processes through the imperfect cohesion of the sensitive film and its support. It is possible that this advantage of the Daguerreotype process may lead to its future employment in cases where precise and delicate measurements are required, but for the present no use is made of it in astronomy.

The collodion process held the field for many years, and despite its liability to several drawbacks, many very beautiful pictures have been secured by it. It has now been almost entirely superseded by the gelatine process, which has proved much more convenient and sensitive. Plates coated with gelatine can be prepared in large quantities by skilled manufacturers at but trifling cost, almost any required degree of sensitiveness can be imparted to them, they can be kept both before and after exposure for a very considerable time, and the exposure itself may be almost indefinitely prolonged. Whatever advantages for terrestrial work may be possessed by the various collodion processes, it is obvious that for general astronomical work these gelatine plates far surpass them, and indeed it was not until they came into use that any great and important advance was made.

The first celestial object photographed with something like a useful practical result following from the picture, was the sun, for the drawbacks attending the collodion process were less felt in working on this object than on any other. It had been known as early as 1610 that the surface of the sun was frequently diversified by dark spots, and it was soon noticed that these varied very much in number, shape, and size from time to time. But it was not until Schwabe, of Dessau, published, in 1851, the results of twenty-five years' observations that it was recognised that these changes occurred in something like a regular cycle. The moment this fact was accepted it became evidently of the greatest importance to obtain as continuous and perfect a record of the state of the solar surface as possible, and such a record photography could give almost perfectly. In our climate there are so large a proportion of days in which the sun only shows itself for a few instants between breaks in clouds, that a method which, like that of photography, can give in an instant a detailed representation of the entire solar surface has an immense advantage over the slow and toilsome process of

sketching from direct eye observation. Impressed with this view Dr. De La Rue, who has been well called "the father of astronomical photography," designed, in 1857, the well-known "Kew" photoheliograph, which has served as the model for a number of subsequent instruments. This consisted of a small telescope, mounted equatorially and driven by clockwork so as to follow the sun in his apparent motion across the sky. The telescope differed, however, in several particulars from an ordinary one. First, since the rays which most easily affect our sight are not those which most easily affect the sensitive plate, the object-glass was constructed so as to bring the latter rather than the former to a focus. Next, the eye-end was fitted with a camera-box. Thirdly, instead of an eyepiece a lens was employed to throw an enlarged image of the sun into the camera, the image of the sun in the first focus of the telescope being only about half an inch in diameter, but the enlarged image being about 4 inches. Lastly, a thin plate having in it a slit of adjustable width was placed so that it could be drawn by a powerful spring very rapidly across the principal focus of the telescope. This effected the exposure of the plate which could thus be made indefinitely short, say, from $\frac{1}{100}$ to $\frac{1}{5000}$ of a second.

The Kew photoheliograph was kept at work from 1858 to 1872. In the following year it was transferred to the Royal Observatory, Greenwich. It was superseded there in 1875 by a similar but somewhat improved instrument, and a series of photographs, as continuous as our climate permits, has been taken there ever since. Since the commencement of 1882, the gaps in the Greenwich series have been supplemented by photographs taken with similar instruments either at Dehra Dûn, N.W. Provinces, India, or at the Mauritius. Similar series have also been obtained at several foreign observatories for a longer or shorter period, *e.g.*, Lisbon, Wilna, and Moscow. Sun pictures are also now to be taken regularly at Washington and Toronto.

The principal outcome of these photographs hitherto has been simply to confirm the results obtained previously by patient eye observation. Schwabe had shown that sun-spots vary as to area and number in a period, which is on the average about eleven years in length. Carrington had shown that spots near the equator of the sun move more swiftly than spots near the poles; more swiftly relatively as well as absolutely, so that whilst a spot on the equator completes its rotation in about 25 days, one at latitude 25° would take about 26 days. Spœrer has further shown that

sun-spots do not frequent the same regions of the sun all through the sun-spot period. Immediately after the period of minimum, the time of no spots, we find spots, few in number at first, appearing in comparatively high latitudes. As time goes on and the spots increase in number and size they fall in latitude, and after the maximum is passed, and they are beginning to decrease, they still fall in latitude, until at the time of the next minimum the last few small spots observed are seen close to the equator, and there only. None of these important laws were indeed discovered by the means of photography, it was applied to the study of the sun too late, but each has been fully confirmed and illustrated by the photographic record.

But spots are not the only features of the solar surface. Near the edge of the sun's disc strange bright irregular markings may often be seen, markings which are so brilliant that they appear bright even on the dazzling background of the sun itself. These are the faculæ, and the photographs have shown that they increase and decrease in number and size just as the spots do, and at the same time. But besides these more striking features of spots and faculæ, attentive observation shows that there are tiny bright points alternated with comparatively dull intervals over the entire surface, these are called the rice-grains, or in the whole the mottling of the surface, and observations made under specially favourable circumstances tend to show that they are but the aggregation of minuter formations still. These rice-grains have never been better shown than in the fine sun pictures obtained by M. Janssen, at Meudon, pictures which brought to light the curious fact that there were vast areas of the sun's disc over which these rice-grains appeared confused and smudged, whilst in neighbouring districts they appeared sharp and distinct. It has been suggested that these blurrings are due to disturbances in the upper portions of the solar atmosphere, but M. Janssen himself prefers to think that the actual "rice-grains" themselves —whatever their nature—are really confused and ill-defined in these particular regions, which are probably regions of storm.

But photography has rendered a far higher service to our knowledge of solar physics than this. The times when we have obtained the most interesting information respecting the sun have been those when it has been entirely concealed from us in a total solar eclipse. Round the dark body of the eclipsing moon we see a narrow ring of rosy light, from which strange and weird forms of the same tint project. These latter are the prominences, and

they themselves stand out on an only less brilliant background, a sheet of pearly light. This again is surrounded by a fainter glow, composed of streaming rays and beams, of infinite beauty and complexity; the inner ring and outer streamers of this pearly glow making up the mysterious corona. Directly these strange and beautiful appendages were noticed the questions arose, "What are they, and where are they?" "Are they the effects of our own atmosphere; do they belong to the moon or are they indeed the appendages of the sun itself?" If the latter then their size and importance must be of the most transcending kind. Nor was the question very soon or easily settled. A total solar eclipse can only under the most favourable circumstances possible last eight minutes; the great majority of eclipses actually observed have only lasted three or four. The magnificence and unexpected character of the spectacle presented to the view, and the shortness of the time of observation render direct observations difficult and detract from their trustworthiness. This was a case where the testimony of the camera was specially valuable, and the photographs have conclusively proved that both the prominences and the corona truly belong to the sun. In the 1860 eclipse the photographs of Secchi and De La Rue showed that the prominences were gradually covered up on the one side by the dark body of moon, as it passed before the sun, and uncovered on the other; thus conclusively proving that they belonged to the sun. Then, again in 1871, photographs of the sun's corona obtained at stations hundreds of miles apart gave so precisely the same details of form and structure that no doubt can remain that, in its main features at least, the corona is a truly solar phenomenon. These results were of the utmost importance, since if the corona and prominences had proved to be merely the effects of our own atmosphere or—though this was practically an impossible theory—appendages of the moon, we could have had little or no reason for observing them; but as solar phenomena they became of the highest interest. The prominences we soon learned to observe in full sunshine by means of the spectroscope; the corona evaded the spectroscopic method, and hence it is still regarded of the utmost importance that photographs of it should be secured during every successive solar eclipse.

The moon which was the first celestial object to be successfully photographed has been photographed very frequently since; but the photographs secured by Rutherfurd in 1864 remain amongst

the very best yet taken. In order to secure the most perfect result possible, he altered a fine object glass, of 11¼ inches aperture, then considered one of the largest size, so as to bring the photographic rays to focus, thus sacrificing its usefulness for direct eye observation. Dr. De La Rue, Crookes, Hartnup, and other astronomers have also succeeded in obtaining very fine photographs of the moon. As yet these have been taken, almost without exception, in the first focus of the telescope, and have been, therefore, on too small a scale to give us much information as to the minute details of its surface, but we may reasonably expect that in the near future, now that more sensitive plates are in use and longer exposures can be given, that greatly enlarged photographs of isolated districts may readily be obtained. A detailed photographic survey of the moon would be a work of the utmost value, and would soon enable us to decide as to whether or no changes on any appreciable scale are taking place on its surface.

The lunar photographs have not, however, been without their practical value. Though, on the whole, the moon keeps always the same face towards us, yet she is subject to a slight oscillation, known as its "libration," by which we are enabled to see first a little way round one side, and then round the other. For the purpose of determining the exact position and amount of this libration, a series of photographs of the moon were taken at the new University Observatory, Oxford, under Professor Pritchard's direction, and the plates proved to be not only suitable for exact and delicate measurement, but some of them are not inferior to the very best which had been previously obtained.

Until some four years ago, the only really useful celestial photographs that had been obtained were those of the sun and moon, and so long as only collodion plates were available, there seemed no prospect of making any great advance. The light of planets, comets, stars, and nebulæ was so comparatively feeble, that prolonged exposures were necessary; so prolonged that no ordinary driving clock would keep the telescope exactly pointed upon the object to be photographed during the entire time. Yet if this was not done with the most perfect exactitude, no satisfactory results could possibly be obtained; otherwise stars would appear on the plates as streaks, and comets and nebulæ as mere smudges. With all the drawbacks, however, of the manipulation of collodion plates, and the difficulties of securing that the telescope followed the object with unerring precision, not a few very promising photographs were obtained. Dr. De La Rue photo-

graphed Jupiter and Saturn, but on too small a scale for the results to have any great value. Rutherfurd and Gould got some very striking and promising photographs of stars, but no use was made of them. The introduction of gelatine plates, and the very rapid improvements which were made in them, produced a great advance. Hitherto comets and nebulæ had been beyond the photographer's skill, but, in 1880, Dr. Draper secured a very promising picture of the great nebula in Orion. Mr. Common, who had supplied himself with a reflector 3 feet in diameter, attempted the same object at the same time, but failed owing to imperfect clockwork. He persevered, however, in his work, continually improving his clockwork, and employing more and more sensitive plates, until, at length, on March 17th, 1882, he obtained a beautiful photograph, and on January 30th, 1883, one more beautiful still. How complete was his success can only be appreciated by one who is at once thoroughly acquainted with the nebula, and who has had the opportunity of completely studying the photograph. Suffice it to say, that no drawing that has yet been made, nor any collection of drawings, afford us so much or such accurate information respecting this wonderful object as is given us by Mr. Common's photographs. Mr. Common did not take photographs only with prolonged exposure; some were but lightly exposed so as to bring out simply the brightest portions, others with a longer exposure brought out somewhat fainter details, whilst the most prolonged exhibited the faintest and most delicate extensions of the nebula, some of which had always escaped the perception even of the most skilled and keen-sighted observers.

In 1881, another triumph had been achieved. On June 24th, 1881, Mr. Common at Ealing, and Dr. Draper in America, each succeeded in photographing the brightest comet of that year. The following year, however, a much greater step in advance was made. The great comet of 1882 will be remembered by almost all, but we in England never saw it under such striking circumstances as it was seen farther south. On September 18th, it was close to the sun, and it was actually first discovered in many places, at the Cape of Good Hope amongst others, by being seen with the naked eye close to the sun in full daylight. At the Cape Observatory it was watched right up to the very edge of the sun. A few days later, Dr. Gill, the Astronomer Royal at the Cape, resolved to attempt to photograph it. In this he was assisted by Mr. Aldis, a local

photographer, and their efforts were crowned with the completest success. Not only was the comet photographed, but the images of many hundreds of stars in its neighbourhood were secured. Of these plates, Mr. Common says, "They came as a revelation of the power of photography in this direction, and it is probably to them that the increased attention lately given to stellar photography is due."

Professor E. C. Pickering, of Harvard College Observatory, was one of the first to act upon the suggestion given by these marvellous Cape photographs, and he soon devised a method of obtaining a complete photographic survey of all the stars visible to the naked eye in his latitude. His purpose was not so much to obtain a record of the places of these stars as of their relative brightness. He was engaged upon the great work recently published under the title of the "Harvard Photometry," the determination of the magnitudes of some 3,000 stars, and it occurred to him that photography might be of considerable service in his chosen field of research. For if a plate be exposed on a star for too long a time the image of the star will become gradually larger, so that when a number of stars of every variety of brightness are photographed on one and the same plate, the resulting images are of every variety of size, the brightest stars being of course the largest. The photographic magnitude does not, however, correspond precisely to the magnitude as determined by eye observation, a red star making a comparatively feeble impression on the plate, a blue star a comparatively strong one.

The most remarkable instance of the application of photography to astronomy is, however, that made by the brothers Henry, of the Paris Observatory. MM. Henry had for many years past been engaged in preparing elaborate charts of various regions of the heavens. At length, however, in the progress of their work they came to the Milky Way, and here the numbers of the stars to be observed brought their work to a standstill; it was impossible to hope to chart these regions by the old slow methods of direct eye observation. They therefore determined to resort to photography, and after some experiments constructed a large instrument for the purpose, with results which have quite exceeded every expectation, and have proved that it is perfectly possible to obtain with a telescope distinct photographs of stars too faint to be seen with the eye by means of the same telescope. For if a star is too faint to be visible with a given

instrument, no prolonged gazing will bring it into view. But with the photograph, it is simply necessary to prolong the exposure to obtain impressions of faint objects, and just as Mr. Common's series of photographs of the nebula in Orion brought out fainter and fainter details of the nebula, so prolonging the exposure of a stellar photograph brings out ever fainter and fainter stars.

Perhaps the most striking success yet achieved by MM. Henry has been their photograph of the Pleiades. In an exposure of an hour no fewer than 1,421 stars were photographed, but that was not all. A nebula was discovered round one of the principal stars, the existence of which had never been so much as suspected before, and which, even after it had been secured by means of photography, could not be seen in any telescope of the Paris Observatory. It has since been seen with the great telescope of the Pulkowa Observatory, and in the clear atmosphere of Nice, but it would probably have entirely escaped notice had it not been for the previous intimation of its existence which photography had afforded.

This photograph of the Pleiades brings into full relief the marvellous revolution in astronomical methods which photography has already effected. M. Wolf, of the Paris Observatory, an industrious and skilful observer, had devoted three years of unremitting labour to the formation of an accurate chart of the Pleiades. His catalogue contains only 671 stars. The photograph taken in one, or rather in three hours,—since it is the practice of the Bros. Henry to expose each plate three times, moving the telescope an infinitesimal amount between each exposure, so that every star is represented by a tiny triangle of spots, and can therefore be at once discriminated from any accidental defect on the plate—shows more than twice the number of stars than the chart does, and represents them in magnitude and position with perfect accuracy. The chart, despite all the care of M. Wolf, is not absolutely free from error. The work of three hours compared with the work of three years has thus the superiority in every respect.

The Bros. Henry, so soon as they had been able by this and similar photographs to prove to the world how effective a weapon was here afforded to astronomers, suggested that it was not only possible but our duty to survey the entire heavens in the same manner as they had already surveyed the Pleiades. Such a survey could not be carried out by any single observatory,

but by five or six acting in unison it would be quite possible before the close of the present century to survey the entire heavens on a scale which would give us the positions and magnitudes of probably not fewer than twenty millions of stars.

Such a record of the heavens seemed a few years ago to be too entirely beyond our reach for its possibility even to be dreamed of. Sir William Herschel, when he wished to arrive at a knowledge of the distribution of the stars was fain to be content with merely counting their numbers in certain confined areas. How he would have rejoiced in the prospect of having the entire sweep of the heavens brought thus within his grasp. We cannot doubt that such a survey will help us on in the solution of the problem which Herschel was the first to attack, and afford us most valuable information as to the configuration of the sidereal universe and the position our little system holds within it. Then the repetition of the photographs at definite intervals would show us whether any new stars had appeared or old ones faded out, what stars were variable, and where they were placed. Such a series, too, would lead to the discovery of fresh minor planets; and if there be any planet or planets revolving beyond the orbit of Neptune they would in time be detected. The question, too, as to variations in nebulæ can receive a far more satisfactory answer from photography than from direct observation.

The photograph of the Pleiades has been far from being MM. Henry's only triumph. The last report of the Paris Observatory mentions photographs of the most striking star-clusters, of 600 photographs of double and multiple stars, of stars invisible in our most powerful telescopes, of the nebulæ of Orion and Andromeda, and of the moon and planets. Photographs of Jupiter and Saturn have been obtained on a large scale, and show an amount of detail comparable with that which can be perceived under favourable circumstances by direct observation.

The most important contribution which photography has yet made to what is sometimes called geometrical astronomy has been in the observations of the two transits of Venus in 1874 and in 1882. The importance of a transit of Venus lies in the facilities which it affords for obtaining a knowledge of the distance of the sun. When Venus is seen projected on the sun's disk, she does not seem to occupy precisely the same place when viewed from one station on the earth as she does when viewed

from another station distant from the first, the change in the place of the observer producing a corresponding apparent change in the position of the object observed. If the distance between the two stations be accurately known, and the apparent displacement of Venus can be observed with the requisite precision, the distance from us of both Venus and the sun can be inferred. It is clear that this is precisely a case in which photography promised to be of great value, but difficulties were experienced in the practical carrying out of the plan, and the English photographs of the 1874 transit were not regarded as of sufficient value to warrant a repetition of the experiment in 1882. The French and American astronomers were, however, more successful, and the latter regard the value for the sun's distance they obtained from their photographs with very considerable confidence.

As yet photography has not helped us either in the observation of double stars or in the determination of stellar parallax, that is to say, of the apparent change in the position of a star in the sky due to the change in the position of the earth as it moves in its orbit round the sun. But the initial experiments which have already been made leave little reason for doubt that we may expect great results from it in both directions in the future.

There is one branch of astronomy to which we have not yet referred, to which photography has been of very essential service. Spectroscopic astronomy, though barely a quarter of a century old, has already wrought a wonderful revolution in our ideas as to the nature and composition of the orbs around us. It has taught us that the same elements which we know here on our earth are also to be found in the sun and in the far distant stars. It has taught us much respecting the condition of the sun, and the circulation which is for ever going on in its atmosphere. It has shown us the existence of carbon in comets, and of hydrogen and nitrogen in nebulæ; and in all these respects it has owed not a little to the assistance of photography. No point, for instance, is of more importance in solar physics than the nature of the spectra shown by the different layers of the solar atmosphere as disclosed to us during the progress of a total solar eclipse; but in the short interval of time the eclipse lasts it is impossible to determine the places of more than a few lines, and it is only too easy to fall into some error in that determination. But the photograph, so long as the lines are sufficiently brilliant, finds it as easy to record the position of a hundred lines

as of one. It has, therefore, always been part of the programme of observation for the last few eclipses to photograph not only the corona and prominences, but also their spectra.

Photography has also been employed in mapping the solar spectrum. The work of measuring the positions of all the thousands of lines which are visible in the spectrum and of representing them in their proper breadths and relative intensities is one which involves the greatest labour, care, and patience, and even when executed with the utmost skill the precise correctness of the result cannot be guaranteed. Photography, however, renders the task a comparatively easy one, and at the present moment a magnificent photographic map of the spectrum, the most complete that has yet been issued, is in course of publication by Professor Rowland, of Johns Hopkins College, Baltimore.

There are districts of the spectrum moreover which are not directly visible to our sight. We are able to trace it from a dark dull red up through yellow, green, and blue to the violet, until it fades away in a dull grey. But at neither end of the spectrum is the apparent limit a real one ; it is not that the spectrum ceases to exist at those points, it is simply that our eyes have ceased to be sensitive to it, and by the use of certain fluids, such as sulphate of quinine, which have the property of becoming self-luminous when acted upon by light, but with light of a kind differing from that by which they have been acted upon, the ordinarily invisible regions beyond the violet are made visible to us. This ultra-violet region, as it is called, impresses itself, however, very readily on the sensitive plate, and it has been very carefully photographed by Cornu, Mascart, Rutherfurd, Vogel, and others.

That the spectrum did not cease towards the red at the point where it ceases to be visible had been known before the existence of the ultra-violet district had been ascertained. If the infra-red was not able to produce upon us the sensation of light, it was rich in heat, and at one time it was even believed that the maximum heating effect lay in this invisible part of the spectrum. Dr. Draper, in the very early days of photography, obtained a Daguerreotype of the spectrum in which not merely the ultra-violet and the visible portions were shown, but also a considerable district in the infra-red. An ordinary photographic plate is, however, insensible, not merely to the infra-red, but also to the red and yellow rays. Captain Abney, however, succeeded in preparing some plates which were sensitive

for just this portion of the spectrum, and he has photographed it further below the limit of visibility in the infra-red than the extreme point of the ultra-violet is above it.

The solar spectrum has not been the only one which has been studied photographically. Dr. Huggins and Dr. H. Draper have photographed the spectra of stars, comets, and nebulæ. The results which the former obtained in his stellar photographs are of very high importance, since it led to the discovery of a series of lines in the ultra-violet portion of the spectra of the blue stars, due to the presence of hydrogen. The comet which was the first which Mr. Common photographed, was also the first the spectrum of which was photographed. Both Dr. Huggins and Dr. Draper obtained negatives of it, both showing a spectrum of bright lines apparently due to cyanogen, Dr. Huggins' photograph also showing evidences of reflected sunlight. Dr. Huggins also photographed the spectrum of Comet Wells in 1882. The friendly rivalry of the two astronomers also extended to the spectra of the nebulæ, and here again the English astronomer obtained the earlier success, photographing the spectrum of the Great Nebula in Orion on March 7th, 1882.

Professor E. C. Pickering has found it possible by placing a prism before the object-glass of his telescope to obtain photographs of the spectra of a large number of stars at the same time, and he proposes to survey the entire heavens as visible from the Harvard College Observatory in this manner. It will be seen that photography will even be more labour saving in this research than in charting the stars themselves; a single exposure recording not merely the places of a number of stars, but the position and arrangement of a number of lines in the spectra of each, a work much more laborious and tedious for eye observation than the determination of the mere position of the star.

The foregoing sketch, though but little more than a mere list of some of the services which photography has rendered to astronomy, will suffice to prove that it has already become a most powerful weapon of research, and, indeed, some astronomers have spoken as if the epoch of direct observation were past, and the entire future progress of the science rested with the sensitive plate. This is without doubt a great exaggeration, for marvellous as have been the triumphs of photography there is no branch of the science in which it has as yet made direct observation unnecessary. It must never be forgotten that the greatest successes of photography have been obtained under conditions the

recurrence of which we cannot ensure at will. Such pictures as Janssen has secured of the sun and the Brothers Henry of the Pleiades, of Jupiter and Saturn, require not only perfect instruments and skilful manipulation, but atmospheric conditions far more favourable than those which usually prevail. If the definition be bad, the photograph must be bad also; it has no power of discrimination, and it faithfully records and presents the sum total of all the disturbances instrumental and atmospheric which have occurred during the time of exposure. Then, again, photography is ill adapted for the watching of minute or rapid changes, and certainly, as yet, it has not been able to surpass eye observation in the information it can give as to minute details in sun, moon, or planets, if, indeed, it has been able to equal it. It is clear therefore that photography can only supplement, it cannot supersede, the work of the keen eye and intelligent brain. Its own field is distinctly marked out for it, and it is a sufficiently wide one. Whenever many observations of a sufficiently bright object have to be made in a short interval of time, as, for instance, during a total solar eclipse, or whenever the details to be delineated are exceedingly numerous, so as to baffle direct observation by their number, as the lines in the spectrum, the markings on the sun, the stars in the sky, or the windings of a nebula, photography proves a most useful assistant, and will prove more and more valuable as time goes on. There are also researches particularly its own, as the examination of the ultra-violet and infra-red portions of the spectrum, and the delineation of stars and nebulæ too faint to be perceived by the eye. In these departments photography has already done much, and will probably do much more in the near future, how much we can scarcely venture to anticipate, but it is well to bear in mind that so recently as twelve years ago its only useful contributions to astronomy had been photographs of the sun and of the spectrum, and that its most remarkable achievements have been effected within the last few months. When the progress has been so rapid and the success so marvellous, we may well look forward with confidence that the successes of the future will not be less striking or less important than those of the yet recent past.

E. W. Maunder.

BURMA.

History.

The Burmese and Arakanese historians claim a miraculous origin for the founders of their reigning families, and to support this have embellished their accounts with incredible fictions, and (in the case of the Arakanese) with statements which their own religious books contradict.

It is impossible to fix any definite period at which fable ceases and history commences, and the limits of this paper forbid of more than a very short account of some of the principal historical events which affected British interests in Burma.

The first British factories in Burma were established at Syriam, Prome, Ava, and Bhamo, in the year 1619, during the reign of King Maha-dhama-radza. The French and Portuguese were also permitted by the Burmans to build factories.

During the wars between King Aloung-bhoora (called by Europeans Alompra) and the Talaings, the English and French took different sides, the former siding with Alompra.

Alompra was the founder of the late reigning dynasty of Kings of Burma. He subdued the Talaings effectually, and conquered a territory extending from China to Siam. In his reign the British Government was first brought into political relationship with the Kings of Burma.

In 1755 Alompra agreed to a treaty with the East India Company, the terms of which were—

1st. The cession of the Island of Negrais in perpetuity.

2nd. Cession of ground at Bassein to the extent of 4,000 square cubits, and more if required, in perpetuity.

3rd. Trade to be duty free.

4th. The Company to give one 12-pr. gun and 730 lbs. of powder.

5th. The Company to aid and defend the King of Burma against all his enemies, His Majesty paying the expenses of the troops.

6th. The Company not to assist the King of Tavoy.

Alompra died in 1759, and was succeeded by his son, Sit-king-meng, who, owing to rebellions, did not obtain undisputed possession of the throne till 1761. He is generally known as Noung-daw-gyee.

In 1759 all the British officials in the factory of Negrais were murdered by the Burmans, but whether with Alompra's sanction or not is not known. The Company now sought to obtain redress from his successor, which the new King not only refused, but forbade them to return there, thus ignoring the treaty made with his father.

Noung-daw-gyee died in 1764, and was succeeded by his brother, Sheng-hpyoo-Sheng.

In 1767 a Chinese army invaded Burma, but was defeated with great slaughter.

In 1775 Sheng-hpyoo-Sheng died, and was succeeded by his eldest son, Sengoo-meng, who was killed in 1781, in which year Bhoo-da-bhoora, or Meng-tara-gyee, the sixth King of Aloung-bhoora's dynasty, ascended the throne.

In 1783 Arakan was conquered by the Burmans.

In 1793 a Burmese force of 5,000 men entered British territory in Chittagong, in pursuit of some marauders, and avowed their intention of remaining there till they had secured them. A British force, under General Erskine, was despatched against them, but the Burmans retired, and no encounter took place.

Mission to the King of Ava.—In 1795 the Governor-General despatched an embassy to the Burmese King. Captain Symes was the envoy, and was treated with great insolence and indignity, and the only result of the mission was permission to appoint a British Consul in Rangoon.

The following year Captain Cox was appointed Consul in Rangoon, and was treated with even greater indignity and grosser insult than Captain Symes had been. No notice was taken of these insults, and our Consul remained in Rangoon subject to all sorts of annoyances, for which no redress was demanded.

In 1801 another mission was sent, which was treated as before. In 1804 the mate and passengers of a British vessel were detained by the Governor of Bassein, and an attempt made to get at the public despatches. No notice was taken of this outrage. Another mission was sent in 1809–10, under Captain Canning, and, though better treated, effected nothing.

The relations between the two countries were now very strained, and continued to get worse. On the part of the Burmans increasing violence and outrage, and on that of the British unaccountable forbearance, which to an Oriental would appear fear, were bringing matters rapidly to a crisis.

King Bhoot-da-bhoora died in 1819, after a reign of 38 years.

Notwithstanding his crimes, he was an able and prudent sovereign. His grandson, the Padoung-Meng, ascended the throne under the title of Hpa-gyee-daw. In his reign occurred the first Burmese war. The causes of this war arose from a long series of events, beginning about 1774. The Burmans having conquered Arakan and Manipur, had been constantly employed in keeping these countries in subjection. In 1822 Arakan revolted, and being furnished with arms by the British, had for a time the best of it; but large reinforcements arriving under the Burman General Maha-Bandoola, they were forced to retreat into British territory. Attacks on British villages now commenced, and many wanton acts of aggression at last made it necessary for the Government to take steps to protect its north-east frontier, and with this object Cachar was taken under British protection, so that any advance of the Burmans from Manipur might be checked. The aggressions on the Chittagong frontier still continued, and a remonstrance, addressed to the King of Burma, eliciting no reply, hostilities were commenced in October, 1823, and, on the 5th March, 1824, war was declared, and carried on under the direction of Sir Archibald Campbell. The treaty of Yandaboo was signed on the 24th of February, 1826. By this treaty the provinces of Arakan and Tenasserim were ceded to the British.

The Burmese record of the first Burmese war, as entered in the Royal Chronicle of the Burmans, is as follows:—

"In the years 1186 and 1187 (Burmese era), the Kular-pyre, or white strangers of the west, fastened a quarrel upon the Lord of the Golden Palace. They landed at Rangoon, took that place and Prome, and were permitted to advance as far as Yandaboo, for the King, from motives of piety and regard to life, made no preparation whatever to oppose them. The strangers had spent vast sums of money in their enterprise, so that by the time they reached Yandaboo their resources were exhausted, and they were in great distress. They then petitioned the King, who, in his clemency and generosity, sent them large sums of money to pay their expenses back, and ordered them out of the country."

In this manner the Burmans registered their case in the national archives, ignoring the fact of their being the aggressors, and of their king being compelled to renounce all claims on Assam, Manipur, Arakan, Martaban, Tavoy, and Tenasserim.

For some years after this peace continued undisturbed, but the natural arrogance and aggressive spirit of the Burmans soon led

them to commit acts of violence against British seamen, and, as the Burmese Court refused all compensation or apology, the second Burman war ensued. War was declared in April, 1852, and peace was concluded in June, 1853, when Pegu was annexed to the British dominions. The King refused to sign any treaty, and it was not insisted on, but the British Government declared its intention that any active demonstration of hostility should be followed by retribution. It was unfortunate that the war was brought to so premature a close, for on neither occasion did we take due advantage of our conquest. In 1826, and again in 1853, it would have been an easy task to reduce the King of Burma to the condition of a feudatory prince, maintained by a subsidiary alliance, like the princes of India. The loss of Pegu reduced the Burmese Empire, which had once commanded the greater part of the eastern coast of the Bay of Bengal, to the condition of an inland power shut up in the upper valley of the Irrawaddy.

Nothing of importance occurred until the year 1874–75, when the relations between the two Governments were considerably strained, owing to the aggressive acts of the Burmans in Karen-nee territory. In 1878–79 a rupture seemed inevitable, and trade was injuriously affected in consequence. In October, 1878, the old King died, and the Theebaw Prince succeeded to the throne without opposition.

In February, 1879, over sixty relatives of the late King, male and female, were murdered in the palace and prisons. The British Resident made a remonstrance, which had little effect, and it was not known when a fresh batch might be massacred. Trade was paralysed, and the situation in Burma had assumed a really serious aspect. A British force was accordingly kept in readiness on the Thayetmyo frontier, but as the Burmans made no aggressive movement it did not advance. In October, 1879, the Resident left Mandalay, and most of the British inhabitants accompanied him.

Matters continued in a more or less unsatisfactory condition till 1885, when the Burmese Government inflicted a most unjust fine on the Bombay-Burma Trading Company, and refused to listen to any appeal. It was felt that the moment had arrived for decisive action. An ultimatum was accordingly sent to the King, and it was intimated that if a satisfactory reply was not received before the 13th November, war would be declared. An expeditionary force was meanwhile prepared and shipped from

Madras and Bengal to Burma. The troops on arriving at Rangoon were at once trans-shipped on to the Irrawaddy Flotilla Company's steamers and flats, and taken to Thayetmyo, where they rendezvoused.

On the 13th November, the conditions of the ultimatum not having been fulfilled, the forces advanced in the order given further on.

Before the Advance.—While waiting for a reply to the ultimatum the gunboat *Irrawaddy* was stationed at Thayetmyo, and the armed launch *Kathleen*, under command of Lieutenant Trench, on the frontier. On the 12th November the *Irrawaddy* left for the frontier, as it was rumoured that an armed steamer of the King's was about. On arriving off Sinboung-way it was sighted, and the *Irrawaddy* opened fire. The enemy then took shelter under a stockade, and the crew jumped overboard.

Next day (13th November) all the troops assembled at Thayetmyo ascended the river and anchored below Sinboung-way. Early on the morning of the 14th troops were landed on both banks, and the *Irrawaddy*, with General Prendergast, Colonel Sanford Auchinlech, Major Macneill, and Captain Alford on board, ascended the river, and soon came into action with the stockade. The enemy cleared out, and the troops arrived without having seen any of them.

On the 17th the troops were landed below Minhla on both banks, the western column at Maloon, and the eastern at Patanayo. The eastern column met with little opposition, but the western had three hours' hard fighting before they overcame the Burmese resistance and stormed the fort.

The following officers and men were killed and wounded in the battle:—

Lieutenant Drury, 11th Bengal Infantry, killed; Major Douglas Macneill, Lieutenant Wilkinson, Lieutenant Sillery, wounded severely; Lieutenant Young, wounded slightly.

The force resumed its advance up river on the 19th, and, after overcoming Burmese opposition at various points, arrived at Mandalay on the 28th November, 1885.

The same day King Theebaw was seized, and, together with his two Queens, the Queen Mother, and several attendants, was sent to Rangoon, and thence to Madras; they have since been sent to Ratanagherry.

Thus ended the third Burmese war, and it is noteworthy that the success which attended the operations was mainly due to the

very perfect manner in which everything had been foreseen and planned beforehand. Some idea of the correctness of the calculations may be formed from the fact that the army arrived at Mandalay only a day later than the date forecast.

Garrisons were left at the following stations on the river:—1. Myin-hla. 2. Yaynan-gyoung. 3. Pagan. 4. Myin-gyan. 5. Sagaing. 6. Ava.

Shortly after Mandalay had been occupied, a force proceeded up the river and took Bhamo unopposed.

All that now remains to be done is to quiet the country and stamp out rebellion. There were some 20,000 King's troops at large when Mandalay was occupied, and these, mostly armed, are scattered all over the country, and, under the name of Dacoits, do much damage. It will doubtless be some time before they are all accounted for and the country thoroughly quieted. The country has hitherto been kept back and its prosperity and civilization retarded by the oppression of the King and the rapacity of Burmese governors and officials. Now that they can enjoy the blessings of British rule they will undoubtedly prosper, as their brethren in Lower Burma have done.

Geography.

Burma has generally been described as divided into two parts, Upper and Lower, and for the purposes of this paper it will be more convenient to retain this manner of dealing with them, the more so as for some time to come they will be probably governed under different conditions.

Lower Burma consists of those seaboard and other provinces which we acquired in the two preceding wars.

Upper Burma is our recent annexation, and may be roughly divided into three parts:—

1st. *Northern Burma*, including a variety of sparse and alien population, Singphos, Shans, &c.

2nd. *Burma Proper*, inhabited by pure Burmans only.

3rd. *The Eastern Shan States.*

Boundaries.—United Burma is bounded on the east by the Kingdom of Siam and the Me-Kong river up to latitude 25° 30′, and thence to its utmost northern extremity by the Chinese Province of Yunan. It is probable that the eastern boundary of our newly-acquired territory will be considerably altered. The northern boundary can hardly be defined; it apparently runs up into an angle among the snowy ranges of eastern Thibet,

thence it stretches westerly, bordering on Upper Assam, Manipur, the Lushai hills, and the Chittagong division of Bengal to the Naaf river, and west and south by the Bay of Bengal.

Area.—The total area of Burma is about 285,664 square miles; of this 192,000 belong to Upper Burma, and 93,664 to Lower Burma.

Physical Geography.—The whole region of Lower, and much of Upper Burma, is traversed by mountain ranges, having a general north and south direction, and all the principal rivers and streams have the same general course, which is the strike of the rocks.

Mountains.—There are three main ranges of mountains in Burma. The Arakan Yoma, which, branching from the Himalaya range, opens out into a confused mass of hills and table-land, from 3,000 to 5,000 feet elevation, and becoming a well-defined ridge of great breadth but comparatively moderate height east of Akyob, continues steadily to Cape Negrais, the southern extremity; the range between the Sittang and Salween rivers, and the Shan Yoma. These latter, with the mountains of the Tenasserim Provinces, must be considered as parts of one great range, which, leaving the Himalayas in the north, run down through Burma to the Malay Peninsula. They greatly exceed the Arakan and Pegu Yoma in elevation, and are distinguished from both by being mainly composed of metamorphic rocks.

The Pegu Yoma has a maximum elevation of about 2,000 feet; it extends north some distance beyond Lower Burma, and terminates to the southward close to Rangoon.

Rivers.—The Irrawaddy is the chief river, and the fourth river in the world in point of size. Its sources are still unexplored, though it is probable that some of the waters of the Sanpa find their way to it. It is navigable at all seasons of the year as far as Bhamo, about 800 miles from the mouth. It is the main line of communication, and the trade route through Burma, and flows through a fertile country. There are three defiles where the river flows between high wooded banks. The first commences at Senbo, and extends for 25 miles. The width of the channel varies from 1,000 to 70 yards, the depth being very great.

The second defile is between Kyoung-toung, and the island of Shway-baw, the third between Sampenago and Sengoo.

The river is full of islands and sandbanks, which are constantly shifting. It rises and subsides three or four times a year.

The flood rise at Bhamo is 60 feet, the river being then 1½ miles wide, but divided into three channels by islands. The principal channel is to the left, and is about 700 yards wide in December. The current in the main channels is about 5 miles an hour.

The first rise is in March; it then rises and falls several times till about June, and then rising steadily, attains its maximum height about September. At this time the height above dry season bed is about 34 feet.

Affluents.—The principal affluents are the Mogoung, Taping, Shwayli, Myit-ngay, Chindwin, Moo, Yau, Ma-htoon, Ma-de, Thala-dan, Kye-nee, Bwot-lay, and Na-weng.

The Salween.—The next river of importance is the Salween. It is not navigable much beyond Moulmain. The sources of this river have never been explored, but are supposed to lie far north in the Himalayas, or the mountains which form their extension eastward. Vast quantities of teak are annually floated down the Salween to Moulmain.

Affluents.—The principal affluents of the Salween are the Toung-yeen, Yonza-leen, Gyain, and Attaran.

The Sittang.—The Sittang is remarkable for its extraordinary trumpet-shaped mouth, the velocity and dangerous nature of the tidal wave (bore) which sweeps up it, the enormous quantity of silt held in suspension by its waters, and its tortuous course. It rises in the hills some 25 miles north of Ye-may-then, and flows south through the Toungoo and Shway-gyeen districts. It is navigable for boats as far as Toungoo.

Shwa, Kyoung-souk, Kha-boung, Hpyoo, Kwon, Thouk-re-gat, Youk-thwa, Kyouk-gyee.—These rivers are at certain seasons of the year navigable for country boats for distances varying from 10 to 30 miles.

Pegu river.—The Pegu and Poozwon-doung rivers rise close together in the Pegu Yoma, about 58 miles above Pegu. The Pegu joins the Rangoon river, and is navigable for a considerable distance.

Hleing or Rangoon river.—This river rises near Prome, and flowing in a southerly direction, passes the town of that name, having received some of the waters of the Irrawaddy through the Nyoung-doung stream. It is navigable for vessels of the largest size for some little distance above Rangoon; but, owing to the Hastings Shoal formed at the junction of the Pegu, Poozwon-doung, and Rangoon rivers, vessels of more than 6 feet draught cannot come up at low tide.

The Tenasserim.—The Tenasserim river has a course of about 300 miles.

Economic Geology.

Coal.—Coal is found in the Irrawaddy valley and in some places close to the river. It is known to exist at Thingadaw, about 70 miles above Mandalay; at Shway-ga below Bhamo; at Mim-baloung in the Shan States east of Mandalay; in the Yau district at Yay-ngau east of Nal-taik. It is found at Pagan and Shimpaya. The coal at Mim-baloung was examined by a mining engineer, and was found to be the true mineral coal, quite equal to the best English. Coal also exists in the Hookong valley.

At Thingadaw the seam is 4 feet thick, and disintegrates rapidly on exposure. It is flaky and cracked, and cannot be got out in large lumps.

Eight miles north-west of Thingadaw, the coal is hard, compact, and jetty. The thickness is about 4 feet. It is distant only 7 or 8 miles from the river.

Peat.—Considerable deposits of peat are believed to exist in the higher valleys of the Salween and Irrawaddy rivers, but particulars regarding them are scanty.

Petroleum.—The principal wells are at Zay-nan-gyoung on the Irrawaddy, the annual yield of which is about 9,000 tons. There are also wells at Pagan.

Mineral Resources.

Gold.—There are good grounds for supposing that this metal exists extensively. In former years as much as 1,000 lbs. annually was imported from China, but now more than half that quantity is produced in the country. It is greatly used in the decorative art. It is found in the following places:—

Mo-goung.—In this district there seems to be a gold field, which if properly worked would prove productive, but it is very malarious.

North-east of Mandalay in the Shan States there is a gold field. It also is malarious.

Thayet-piere-ywa. — Near the Myit-ngay, on the road to Pyoung-shoo, south-east of Mandalay, gold quartz is found in abundance, the reefs cropping up from the ground, and there is reason to believe that very valuable mines are in existence, and

could be worked and developed with little trouble. A piece of quartz from here 3½ lbs. weight produced 1½ oz. of gold.

Yaw District.—South-west of Mandalay. Gold is obtained here in fair quantities from alluvial deposits. It exists in Sagaing, Kannee, Seni-jo, and the Chindwin river. It is also procurable in the sand of most rivers between Mandalay and Mo-goung, which would seem to indicate its presence in large quantities in the mountains from whence these rivers flow.

Hoo-kong Valley.—Gold is here found both in dust and in pieces the size of a large pea. The rivers which produce the largest quantities are the Kap-dup and the Nam-kwon. Gold is also said to be abundant near the supposed junction of the two main streams of the Irrawaddy in the Kampti country.

Silver. — The most prolific mines are those of Baw-yine, Kyouk-teh, and Toung-bine, near Theebaw, north-east of Mandalay; but it is found mixed with lead.

Kampanee.—This mine yields about 15 oz. silver to 1 cwt. of ore, while the poorest mine gives about 2½ oz. silver to the same quantity of ore.

Baudween, Baudween-gyee, and Sagaing.—In these and other mines silver is found unmixed with lead.

Copper.—This metal is found in the Shan States but is not worked; also in Kolen-myo and Sagaing. At Baw-yine and Kolen-myo the malachite appears of a rich description. It is found in the islands of the Mergui archipelago and the hills between the Salween and Sittang.

Iron.—Iron abounds in the Shan States and district of Pagan. West of Sagaing for miles up the Irrawaddy, a rich hematite abounds. In the Tenasserim division it occurs as an oxide, and near Tavoy specimens were found containing 60 per cent. of metal.

Tin.—Tin exists in the Shan States, south-east of Mandalay, but has never been worked. It is found in the Malee-won subdivision of the Tenasserim district in considerable quantities, and on the eastern sides of the mountains nearly opposite Tavoy. At Kahan, on Mergui island, tin is found in a crystallised form in a vein about 3 feet wide. The tin is generally most abundant where the large scales of chlorite occur, called by the natives the mother of tin. No tin has been raised here since we took the country but the locality is known. In the Burmese time it supplied the richest ore. The crystallised form in which it is found renders its separation extremely easy. Tin is found in

the granite mountains east of Toungoo, and, it is believed, in Karen-nee.

Rubies.—The principal ruby mines are at Kyat-pyen, about 70 miles north-east of Mandalay. This place is said to be surrounded by nine mountains which enclose seventeen small lakes. The mineral district is divided into fifty or sixty parts, each having a distinct name. The stones are found at a depth of from 20 to 30 feet from the surface. Besides rubies, sapphires, topazes, and oriental emeralds are also found. Spinel is abundant. A little further north, at a locality called Moo-kop or Mo-gouk, there are other ruby mines. There are also ruby mines within 16 miles of Mandalay and 2 from the Irrawaddy. The mountains where they occur are of limestone or marble, covered with red clay and decayed calc spar. They have a fractured appearance throughout, and the hollows are filled with detritus, out of which rubies, sapphires, spinels, and amethysts are obtained by washing. Where this detritus is of a yellow colour the stones are best. The rubies from this locality are said to be lighter coloured and less valuable than those obtained further north. The revenue from the mines was a royal monopoly, and amounted to 12,000*l.* or 15,000*l.* a year.

Jade.—Jade is found in the Mo-goung district, 25 miles south-west of Mien-Khum. The pits do not appear to exceed 20 feet in depth, and the jade is described as occurring in loose boulders. The most valuable jade is of an intense bright green colour, resembling the emerald, but red and pale pinkish kinds are also highly prized.

Platinum.—Platinum has been found to occur in the gold washings near Ava; and a good deal is brought from some streams which fall into the Chindwin river from the west, near a town called Kannee. It is also reported to occur in the Shan States. By the Burmans platinum is known as "Shenthan" or "Shway-been," which means "white gold."

Amber.—The principal amber mines are in the Hookong valley. The amber is found from 5 to 15 feet below the ground. The deeper the pits are dug the finer the amber, the bright pale yellow kind being got only at a depth of 40 feet under the ground.

Besides the amber found on the Payen-toung, or amber mine hills, there is another place on the east side of the valley called Kotah Bhoon, where it exists in great quantities. The spot is considered sacred by the Singphoos, who will not allow the

amber to be taken away, although it is of an inferior description.

Graphite.—Graphite is found in large quantities east of Nattik, on a low range of hills near the village of Nyoke.

Besides the above, sulphur, salt, and saltpetre, are found in considerable quantities.

Ethnology.

A close examination of the manners and customs of the inhabitants and of their various dialects, and of the remnants of traditions still preserved amongst them, shows that they may be divided into four main stocks. — 1. Burmans. 2. Talaings (Moonor Peguan). 3. Karens. 4. Shans. Round these four nearly all the minor divisions can be grouped; but not all, for some of the wild tribes of the hill tracts of Arakan and the Selungs, found only on the islands of the Mergui archipelago, differ entirely from these.

Burmans.—The name by which the Burmans call themselves is Myam-ma or Meam-ma, pronounced Byam-ma or Bam-ma. The origin of this name is by no means clear. By the Chinese and neighbouring tribes under Chinese influence they are called Mien, and the Thibetanes seem to know them under this appellation. It is quite possible that Mien is the true name of the race, and the affix "ma" has been added for euphony. The Burmans are undoubtedly of Tartar origin, and Father San Germano and the late Dr. Mason, both Burman scholars, were of this opinion.

According to the Burmese annals, at some indefinite period before the sixth century B.C., a people came down from the slopes of the Himalayas and settled in the plains between the foot of the mountains and the Ganges. Here they were attacked by a people from the west and driven eastward into the Irrawaddy valley. Whether this account be true or not, it appears clear that the Burmans are of a kindred race with the Thibetans, and originally came from Thibet of the Eastern Himalayas. Pritchard, in his "History of Man," says, "The vast region of Asia forming the south-east corner of that continent which reaches the sea-border from the mouth of the Ganges and Brahma-putra to the Hoang-ho of China and even further northward towards the mouth of the Amur, is inhabited by races of people who resemble each other so strongly in moral and physical peculiarities, and in the general character of their languages, as to give rise to a

suspicion that they all belong to one stock. With the rivers that descend from the high country of Central Asia, these natives appear to have come down at various periods from the south-eastern border of the great plateau, in different parts of which tribes are still recognised who resemble them in features and language." And he continues to conjecture, "That all the people who inhabit the low countries of south-eastern Asia from the Hoang-ho southward, and westward as far as the Brahma-putra, are offsets from the Bhutia who inhabit the southern margin of the great central upland."

The Burman, in general, has a fairly well-built frame, with a strong and well-shaped bust, and with legs correctly formed, but a little short. Both men and women have long black hair, which the men tie in a knot at the top of the head and the women behind. The men have a singular habit, at one time universal, but which is now dying out, of deeply tattooing their persons from the waist to the knee in black, so as to give the appearance of a pair of breeches. Figures of all sorts of animals and reptiles are represented, but so closely together and the intervening spaces so filled up with tracery that it is almost impossible to distinguish the designs. The origin of the custom is very obscure. It is not practised by other Indo-Chinese races who have not come into contact with the Burmans, and appears to have been introduced at a comparatively recent date.

Character of the Burmans.—About the most trustworthy description of the Burmese character is given in Yule's "Mission to Ava," and is as follows :—

"Unlike the generality of Asiatics, the Burmans are not a fawning race. They are cheerful and singularly alive to the ridiculous, buoyant, elastic, soon recovering from personal or domestic disaster. With little feeling of patriotism, they are still attached to their houses ; greatly so to their families. Free from prejudice of caste or creed, they readily fraternise with strangers, and at all times frankly yield to the superiority of the European. Though ignorant they are, when no mental exertion is required, inquisitive, and, to a certain extent, eager for information ; indifferent to the shedding of blood on the part of their rulers, yet not individually cruel. Temperate, abstemious, and hardy, but idle, with neither fixedness of purpose nor perseverance. Discipline or any continued employment becomes most irksome to them, yet they are not devoid of a certain degree of enterprise. Great dabblers in small mercantile ventures, they

may be called (the women especially) a race of hucksters. Not treacherous nor habitual perverters of the truth, yet credulous and given to monstrous exaggerations. When vested with authority arrogant and boastful. If unchecked, corrupt, oppressive, and arbitrary. Not distinguished for bravery, whilst their chiefs are notorious for cowardice; for with the latter cunning in war ranks far before courage."

Burmese Women.—Amongst the Burmans woman holds a position of perfect freedom and independence. They are open hearted and merry in disposition, and no European has ever entered into free and kindly intercourse with them without being more struck with their virtues than their faults. The manners of the Burmans are distinguished by a pleasing mixture of courtesy and freedom. They are good-humoured and considerate in their intercourse with each other, and one is struck by the enjoyment, happiness, and contentment of the people. They are, however, very sensitive to raillery, and have a peculiar dread of what they call "ashet," or shame, and commit suicide for the most trifling causes. Any momentary annoyance or shock to their pride furnishes them with sufficient cause for self-destruction.

Nowhere is royalty more venerated than it is among the Burmans. Any action taken by commoners against royalty carries with it religious as well as social penalties. Yet nowhere has rebellion been more common.

Language.—The Burmese is a monosyllabic language. The comparatively few words which are polysyllabic are derived from Pali, which has supplied most terms that relate to religion and art. Compound words formed of the Pali word and its Burmese synonym superadded are common. One of the principal features in the language is the arrangement of the words in a sentence, which is, as in Thibetan, the reverse of that observed in English. On the other hand, the Talaing and Shan languages and the Karen dialects require substantially the English arrangement. Another peculiarity is in the nouns and adjectives and tenses of verbs. They are all formed by the addition of affixes or suffixes to a verbal root, whilst passive verbs are in many cases changed into active verbs by aspirating the initial consonant. The written characters in use are with one or two exceptions composed of circles or segments of circles. The alphabet is derived from the Pali, and was doubtless imported into Burma simultaneously with Buddhism; but in

accommodating an essentially Aryan alphabet to the sounds of a monosyllabic language considerable changes have been made in the phonetic value of many of the letters.

The Burmese language is written from left to right, and with no spaces between the words. It consists of ten vowels and thirty-two consonants.

The under-mentioned peoples are branches of the Burmese race—1. Arakanese ; 2. Tavoyers ; 3. Khyoung-tha ; 4. Khami and Mro.

1. *Arakanese.*—The Arakanese are shut off from the parent stock by mountains which, except towards the southern extremity of the range, admit of little intercourse from one side to the other. Hence those Arakanese living in the northern part of the country adjoining Bengal have some peculiarities in dialect and in manners. By the natives of India they are called "mugs," a foreign term never used by themselves. By Burmans of Pegu they are called "Ra-Khaing-tha," or inhabitants of "Ra-Khaing," the Burmese name, of which Arakan is a corruption. In the extreme south of Arakan the people may almost be said to be Burmans, they are coarser, more violent tempered, have more of the pride of race than the people of the north, from whom they differ in character, language, and customs. The difference in language is only a difference of dialect ; some words are different, but the grammatical construction of the sentences is the same.

2. *Tavoyers.*—The Tavoyers consider themselves descendants of Arakanese colonists, and their view is supported by a general resemblance in character, and by some peculiarities in their dialect which has many Arakanese provincialisms.

3. *Khyoung-tha.*—The Khyoung-tha are found in Arakan, partly in the Akyab district and partly in the hill tracts. They are generally of Burmese stock, but three of the seven classes into which they are divided, viz., the "Da-la," "Morn-Ntouk," and "Rook," are said to be descended from Talaing, who came to Arakan with a Peguan Princess, who was married to an Arakanese King in 1588 A.D. Tattooing is practised, but not to the same extent as in Burma. Though professedly Buddhist spirit worship is much more practised. It seems probable that they are descendants of those Arakanese who settled in the hills who received little Bhuddism or civilisation, and adhered more to their primitive form of spirit worship. The name denotes simply "sons of the river."

4. *Khami and Mro.*—The Khami and Mro inhabit the hill tracts of Arakan, and are considered to belong to the Burmese stock, which they closely resemble in physiognomy and language. They have black straight hair, high cheek bones, oblique eyes, scanty beards, and appear like the Arakanese in a ruder state of existence. The Mro, according to Arakanese history, appear to have been in the country when the Myam-ma race entered it; but the same authority implies that both races are of the same lineage.

Talaing.—From tradition and such scanty historical notices as have survived we are led to look to the east coast of India, and especially the ancient Talinga and Talingana, as the countries which, at a very remote period, traded with and colonised the coast of Pegu. The people of Pegu are known to the Burmans and to the Indians by the name of Talaing, a word derived from Talingana, and strictly applicable only to the foreign settlers. The Peguans, however, call themselves by another name, Mun or Mwon.

According to Dr. Mason, Talaing is in its vocables the most isolated language in further India. Its roots are not allied to Tai, Burmese, Karen, Thoung-thoo, Kyeng, or any other language spoken by the Indo-Chinese nations, but have a radical affinity with the Kol of the mountainous region of Central India.

Kareng or Karen.—The Karen have no distinctive name for themselves, and to them the word Karen is unknown except as being their name in Burmese. The nearest approach to it is "Ka-ya," the name by which the Karen-nee or Red Karen call themselves, and "Ka-yay" by which some of the Bghai clans are known amongst themselves. They are undoubtedly not of the same race as the Burmans or Talaings, and certainly not the aboriginal inhabitants of Burma. Their earliest traditions tell of "a river of running sand" which their ancestors had crossed before coming—a fearful trackless region where the sands rolled before the winds like the waves of the sea. This is probably the great desert of Gobi, which extends from Mongolia to Yarkand, and from Dyungaria to Thibet, and which the Chinese pilgrim, Ta Hian, describes as the "river of sand" so terrible to cross.

The real home of the Karen people is the vast series of lofty mountain ranges that lie between the Irrawaddy and Menam rivers, and from the south of the Yunan Province to the extremity of Merqui. The demon worship obtaining among the

Karen tribes is similar to that of the Thibeto-Burman hill tribes to the westward. They have traditions of the creation and fall of man which coincide in a singular manner with the Mosaic story.

The Karen appear to have thrice emigrated: once from the central plateau of Asia, once from northern China in about the second century, and again in the fifth or sixth when they spread over the mountains between the Irrawaddy and Menam. The Karen are divided into three tribes, and these again into clans distinguished by their dress and dialect:—

1st. *Sgaw* so-called by themselves, Myit-tho by the Burmans, Shan by the Pwo, Pa-Koo by the Karen-nee, White Karen by some English writers, Burmese Karen by some English and Burmese writers.

2nd. *Pwo* so-called by Sgaw, Sho by themselves, Myet-cheng by some Burmans, Talaing Karen by some English and Burmese writers.

3rd. *Bghai* so-called by the Sgaw, Pye-za by themselves.

The preceding tribes, though one in language, differ considerably in their physical characteristics. Those who inhabit the lowlands resemble in their physical traits the Burmans of similar localities more than the Karens who live in the hills. They are a short, muscular people with large limbs.

The Karen language is monosyllabic.

The Shans.—The Shans are immigrants who have appeared in the lower valleys of the Sittang and Irrawaddy rivers of comparatively late years. They call themselves "Tai," and this name is appropriated by each division except the Siamese, who use the aspirated form, and call themselves "Htai."

They are the most extensively diffused and most numerous of all the Indo-Chinese races, lapping the Burmans round from north-west by north and east to south-east. They are found from the borders of Manipul to the heart of Yunan, and from the valley of Assam to Bang-kok and Kamboja. Everywhere Buddhist, and to a considerable extent civilised, and speaking the same language with little variation, the traditions of the Siamese and northern Shans speak of an ancient and great kingdom held by this race in the north of Burma. The kingdom of Siam is now, perhaps, the only independent Shan state in existence.

In their features, manners, and fondness for agricultural pursuits, the Shans strongly resemble the Chinese. They are not a tall race, the average height of men reaching scarcely 5 feet 8 inches. They are good-natured and contented, and,

compared with the jovial Burmans, a quiet and rather sedate people. The different divisions of the "Tai" family have alphabets of their own. The Shans follow the Burmese alphabet closely, one-half of their letters being identical in form with the Burmese letters. Undoubtedly the language used by these different divisions was originally the same, but in process of time became separated into several dialects. The similarity of language is a sure evidence that there was originally one "Tai" language, from which the present diversity has sprung.

The Shan language is monosyllabic, but has many polysyllabic words of Burmese and Shan origin. Unlike Siamese, Shan has no tonal signs.

Burmese Religion.—In ancient times, the religion of the Burmans was Shamanism, in common with the great nomadic races of high Asia, of which they are an offset. This debased system of spirit worship has been superseded by Buddhism, but it still lingers in the land in the form of adoration and dread of Nats or Dewas, which order of beings has been introduced into the Buddhist system. As to when and by what means the Burmans first obtained their knowledge of Buddhism, no authentic record exists. Sir Arthur Phayre opines they were converted by Buddhist missionaries from Gangetic India, who reached Upper Burma through Bengal and Manipur. Others suppose it was introduced from China. It is not unlikely, however, that the Burmans obtained both their religion and their alphabet through the Talaings.

The Talaings were converted to Buddhism by two missionaries who arrived at Tha-thway, the Talaing capital, in the year 310 B.C. The Buddhist doctrines were propagated here as elsewhere orally, and the Talaings did not possess them in a written form till they were brought to them from Ceylon by Buddhagosa in 450 A.D.

In 1080, the Burmese King of Pagan conquered the Talaings, and took their scriptures with him to Pagan, as also the most learned of the priesthood.

Buddhism.—The Buddhist religion is taught by the monks, called in Burma Phoon-gyees, and the Buddhist Kyoung or monastery plays an important part in the life of every Burman. Gaudama preached that every man should become a monk; and in theory, if not in practice, every man does become a monk at least once in his life. It may be only for a few days or weeks, or it may be for months or years; all this while he is subject to monastic discipline, even if he is a member of the Royal Family.

As soon as boys are able to read and write, religious books are put into their hands, from which they imbibe religious notions, and become acquainted with at least some part of their creed. Consequently, when they attain to manhood, a large proportion of them possess a respect for their religion and a kindly regard for monks and monasteries.

All towns and villages in Burma contain a number of monasteries, and in Upper Burma the country was portioned off into ecclesiastical divisions or dioceses, subject to the authority of a gon-ok or bishop. In Mandalay is stationed the Tha-tha-na-boing or patriarch. He is supreme in all matters connected with religion, and next to the king receives the greatest external homage.

Literature.—Burmese literature is more extensive than is generally supposed. It cannot compass in extent and variety with the Buddhistic literature of Thibet and Nepaul, nor probably with that of China or Japan, but it is, nevertheless, most important. It is not corrupted by the imported Hinduism in the Sanscrit Buddhist books of Thibet, for in Burma these were obtained from Ceylon, whilst its ancient faith was still triumphant, and before the Brahministic Kings had destroyed the greater part of the sacred books.

Marriage.—Marriage is but a civil and personal contract, requiring, however, the sanction of parents or guardians. Polygamy is recognised and permitted, but the great majority of Burmans have only one wife.

Amusements.—The principal amusements of the Burman and Talaing are the Pway (or theatrical representations), boat races, buffalo fights, lek-pwai (or boxing matches), cock fighting, a sort of football, a miniature representation of nine pins, and gambling of all sorts.

Dress.—The dress of the Burmans is very simple. The men wear a cotton or silk kilt and plaid, both in one, knotted round the middle and hanging down to the knee, about 6 or 8 yards long. The part not worn round the body is thrown over the shoulder like a plaid. They are generally checked or striped. The dress of the women is a piece of cotton or silk nearly square, knotted round the middle and folded tightly over the bosom. It is open in front, so that in walking the legs and part of the thighs are exposed.

Houses.—The houses are generally square or oblong shaped, and raised on posts 7 or 8 feet above the ground. They are

made of wood or bamboo, and thatched with wooden shingles or mats, and are consequently as inflammable as match boxes. The furniture consists of mats and hard square pillows.

Food.—The food is simple, the staple article being plain boiled rice, with a soup or thin curry of vegetables, chillies, and onions, and a pinch or two of fish paste and fish or meat if it can be afforded.

Climate.—The climate of Burma differs considerably in its higher and lower districts, but is everywhere salubrious to natives and not inimical to the European constitution. The low jungles are for the most part malarious, and in some places, as, for instance, the country between the Chindwin and Manipur, said to be deadly to Europeans. Except in the mountain regions to the north-east, there may be said to be three seasons, the cool, the hot, and the rainy. In the cold weather between November and February the thermometer ranges between 40° and 60°.

The great heat averages in the hottest weather 85° to 90°, but sometimes rises much higher. In the most elevated districts a comparatively cold winter is encountered, and in the mountains and high tablelands stretching between the north-eastern frontier and China snow falls during the winter months, though it does not lie long. Frost during the night is also of frequent occurrence.

Trade, Manufactures, &c.

For many centuries Burma had a flourishing trade with China by the route leaving the Irrawaddy at Bhamo.

The value of the trade some twenty years ago was, according to Colonel Yule, as under:—

Exports	....	Rs. 23,50,000
Imports	....	18,75,000
Gross value	....	Rs. 42,25,000

The trade of Upper Burma with the British Provinces amounted in the year 1878–79 to 2,077,540*l.*, of which 1,607,706*l.* came by the Irrawaddy route, 313,208*l.* by the Sittang, and 156,62*l.* by the land route.

Trade Routes.

The principal trade routes between Upper and Lower Burma are:—

River Routes.—Irrawaddy, Sittang.

Land Routes.—1. Railway from Rangoon to Prome. 2. Railway from Rangoon to Toungoo. 3. Road from Arakan to Myin-hla *viâ* An Pass. 4. Road *viâ* Toungoo to Yemaythen.

Routes between Upper Burma and China and Shan States—1. Bhamo to Western Yunnan *viâ* Kachin States. 2. Mandalay to Shan States *viâ* Nattik Pass. 3. Myingyan to Shan States *viâ* Nattik Pass.

The principal items of import are raw cotton, sessamum oil, silk piece goods, timber, cutch, petroleum, jaggery, stick lac, pickled tea, fruits and nuts, hides, yade stone, wheat, tobacco, ponies, cattle, caoutchouc. There is also a trade in metal and cotton goods, raw cotton, lacquered ware, precious stones, and copper.

The exports include the following principal items:—Rice and paddy, cottons, twist and yarn, salt (Europe), sugar, piece goods (cotton, silk, and wool), raw silk, betel nut, wines and spirits, metals (exclusive of machinery), ngapee, crockery.

The resources of Lower Burma are still undeveloped, owing to the want of roads. It seems a monstrous thing that after thirty years of British rule the country should have only two narrow gauge railways, one to Prome, 163 miles long, and the other to Toungoo, of nearly the same length, and, except near the large towns, scarcely any roads fit for traffic. The revenue of the country during the eight years ending 1883–84 amounted to 17,380,267*l.* Out of this close upon six millions sterling went into the Indian Treasury, and less than two millions were spent on public works. This seemed so downright a robbery to the Rangoon community that they recently demanded separation from India. This would hardly seem to be expedient, but there can be no doubt that the sooner the country is opened out by railways and good roads the sooner will its resources be developed, and the more valuable will it become.

Now that Upper Burma has been annexed we have an immense new country, more fertile and richer in minerals than Lower Burma. The gold fields, ruby mines, &c., will doubtless attract many speculators. The ruby mines have always been a Royal monopoly, and are much richer than is generally supposed. Monsieur Bonvillain, a French engineer, residing at Mandalay, inspected the richest mines, which are at Khyay-pyin, Kha-thai, and Moh-goht, and proposed to lease them for a period of four years, paying thirteen lakhs of rupees, about 130,000*l.*, for the concession.

With a properly governed country, a contented population, and good communications, Upper Burma will develop rapidly, and prove to be the most valuable addition to the British Empire that has been made in this century.

The lines of railway most required at present are the following:—1. From Toungoo to Mandalay, *viâ* Yemaythen and Hline-det. 2. Myin-gyan to Hline-det. 3. Mandalay to Bhamo. 4. Bhamo to Assam, thus connecting Calcutta with Rangoon by rail.

Mr. Colquhoun recommends as the best means of developing the trade with China that a railway should be made starting from a point on the Rangoon-Toungoo railway, opposite to the town of Shway-gyeen. This is some 20 miles distant, and the line would proceed through it along the east bank of the Sittang to the towns of Sittang, Beeling, and Martaban.

At Dong-woon, a place 60 miles from Martaban, the proposed railway to Kiang-hung would have its junction, proceeding from Dong-woon to the banks of the Salween at the junction of the Yonzaleen river, or perhaps along the Salween to our boundary with Karen-nee; it would cross the Salween, and proceeding to the Thoungyeen, follow the banks of that river to the mouth of the Main-long-gyee, and thence to Zimmé. Between the Méping river (which flows past Zimmé) and the Salween, there exists but one main range of mountains about 3,000 feet high. On reaching Muang-Haut all difficulties cease until the watershed between the Méping and the Mélaw is reached. From here to Kiang-hai the road runs through a plain with undulating ground. At this point McLeod's route would be left in order to avoid the difficult country of the Kiang-tung plateau. Crossing the Mé-Khok (which flows into the Kambodja river at Kiang-tsen) and descending that stream, the bank of the river would be followed to Kiang-tung. The distance from Moulmein to Kiang-hung would be about 625 miles.

Trade with Yunnan.—Much has been written regarding the commercial prospects of the British merchant in the Chinese Province of Yunnan. It should be remembered that the western, south-western, and central portions of this country are especially likely to prove good markets. Some millions of people there require our piece goods, and in return will give us the best tea drunk in China, cotton, silk, petroleum, and the most useful and precious metals, the supply of which can be developed to an enormous extent. The old route from Bhamo

across the Kachin hills is only practicable for mules, and it seems hopeless to think of making it so for wheeled carriages. The object should be to attain some town of importance south of Yung-chang or Talifoo, such as Shunning-foo, from which both those cities could be reached by ascending the valleys instead of crossing all the mountain ranges as must be done in the Bhamo route.

Administration.—For administrative purposes Burma is divided into the undermentioned divisions and districts :—

Lower Burma consists of the Arakan, Pegu, Irrawaddy, and Tenasserim divisions.

Arakan Division.—1. Akyab. 2. Kyauk-Pyee. 3. Sandoway. 4. Hill tracts of Northern Arakan.

Pegu Division.—1. Rangoon Town. 2. Hanthawaddy. 3. Pegu 4. Tharrawaddy. 5. Prome.

Irrawaddy Division.—1. Thon-gwa. 2. Bassein. 3. Henzada. 4. Thayetmyo.

Tenasserim Division. — 1. Moulmein Town. 2. Amherst. 3. Shway-gyeen. 4. Tavoy. 5. Mergui. 6. Salween.

Upper Burma consists of the following districts :—1. Mandalay. 2. Bhamo. 3. Katha. 4. Shwaybo. 5. Yay-u. 6. Sagaing. 7. Ava. 8. Kyouksay. 9. Lower Chindwin. 10. Upper Chindwin. 11. Myin-gyan. 12. Pagan. 13. Minbu. 14. Yamaythin.

These are in charge of Commissioners and Deputy Commissioners, the Chief Comissioner being Sir E. Bernard, K.C.S.I.

There are six classes of Civil Courts besides the Court of Small Causes in Rangoon, the Court of the Recorder, and the Special Court, viz. :—1. Court of Extra Assistant Commissioner, 3rd class. 2. Court of Extra Assistant Commissioner, 2nd class, 1st and Assistant Commissioners. 3. Court of Deputy Commissioners. 4. Court of Judge of town of Moulmein. 5. Court of the Commissioner. 6. Court of Judicial Commissioner.

The Recorder's Court is presided over by a Barrister of not less than five years' standing, who sits ordinarily in Rangoon. The Police Force was differently organised in each division, and is very inefficient in all. It is now being re-organised.

Education.—Education was formerly in the hands of the monks, who conducted it according to their own ideas, and so badly, that Sir A. Phayre endeavoured to improve it by giving grants in aid, and encouraging the instruction of the pupils in arithmetic, land surveying, and geography. Now lay schools

for boys and girls have been established in the villages. In nearly all of them and at the wish of the people the study of English has been introduced. There are Government schools at all the chief towns, and the High School at Rangoon is a most excellent one. Besides these, there are many missionary schools.

The Director of Public Instruction, Mr. P. Hordern, B.A., is a fine scholar and most energetic officer. It is to him that the present high standard of education in Burma is due. He has the distinction of being the worst paid official in the British Empire.

I append for information the monthly salaries of some of the principal officials in Burma :—

Monthly Salaries of Heads of Departments in Burma.

Chief Commissioner	Rs. 4666	includes Rs. 500 sumptuary allowance.
Secretary to Chief Commissioner	2200	includes Rs. 200 office allowance.
Land Revenue and Agricultural Secretary to Chief Commissioner	1238	
Ditto ditto in P. W. D.	1800	
Commissioners of Divisions...	2750	
Deputy Commissioners, 1st grade...	1833	
Ditto 2nd grade	1666	
Ditto 3rd grade	1333	
Conservator of Forests	1500	
Chief Collector of Customs	1500	
Recorder of Rangoon...	2386	
Judicial Commissioner	2586	
Judge of Town of Moulmein	Rs. 1600	
Inspector General of Jails	1500	
Sanitary Commissioner	1500	
Engineer in Chief B. State Railway	1600	
Director of Public Instruction	1250	

It is needless to remark that the administration of Upper Burma is as yet in embryo. We have now got soldiers enough in the country to stamp out the rebellion raised by the disbanded soldiers of King Theebaw, and in order to complete, thoroughly and effectually, the pacification and civilisation of the country, to develop its resources and make it prosperous and rich, we require a firm and even-minded Government, combined with "roads, and more roads, and yet more roads."

DOUGLAS MACNEILL, Lieut.-Colonel.
D.A.Q.M. General, Madras Army.

THE HISTORICAL MSS. COMMISSION.

THE increasing interest in archæological research is one of the most marked characteristics of the present day, when every locality has students who are patiently investigating its past annals, and thus accumulating material for the general historian. Fresh light has been thrown upon many important incidents of the past, and many a page in the chronicles of the nation, although stereotyped for generations, will have to be re-written for our children. The vast stores of information made accessible by the publication of the Rolls series of chronicles, and by the Calendars of State Papers, have revolutionised the conception of the historian's task, and whilst furnishing him with a wealth of material, have also imposed upon him the duty of weighing and sifting, and of reliance only upon evidence at first hand. The day is past when the chief qualification of a historian was thought to be the power of elegant writing. As the appetite grows by exercise, the unlocking of the official storehouses led to rummaging of private collections, and many interesting and important documents were thus given to the world. Early in 1869 a Royal Commission was appointed with a view to a more systematic revelation of the inedited papers in them. The motive is well expressed in the Queen's Commission of Appointment, which declares, "Whereas it has been represented unto Us that there are belonging to many Institutions and private Families various Collections of Manuscripts and Papers of general public interest, a knowledge of which would be of great utility in the illustration of History, Constitutional Law, Science, and general Literature, and that in some cases these Papers are liable to be lost or obliterated: And whereas We are informed that many of the Possessors of such Manuscripts would be willing to give access to them, and permit their contents to be made public, provided that nothing of a private character or relating to the title of existing owners should be divulged: And whereas it appears to Us that there would be considerable public advantage in its being generally known where such Papers and Manuscripts are deposited, and that the contents of those which tend to the elucidation of History, and the illustration of Constitutional Law, Science, and Literature should be published," therefore Baron Romilly, the Marquis of

Salisbury, the Earl of Airlie, Earl Stanhope, Lord Edmond Fitzmaurice, Sir William Stirling Maxwell, C. W. Russell, George Webbe Dasent, and Thomas Duffy Hardy, should be a Royal Commission, with Mr. G. W. Brett as its secretary, to inquire, examine, and publish abstracts and catalogues of such collections. There have been several changes in the *personnel* of the Commission, several having been added, and several removed by death.

The method adopted by the Commission was in the first place to make known its objects, and then to invite possessors of MSS. to allow them to be examined. The willingness, and indeed the desire of the owners, proved to be greater than had been expected, and in addition to Mr. H. T. Riley and Mr. A. J. Horwood for England, Dr. John Stuart was appointed for Scotland, and Mr. J. T. Gilbert for Ireland, whilst the aid of Mr. Joseph Stevenson was also secured. In subsequent years Mr. R. B. Knowles, Mr. H. C. Maxwell Lyte, Mr. J. C. Jeaffreson, Mr. J. B. Sheppard, Rev. J. A. Bennett, Dr. William Fraser, Mr. W. O. Hewlett, Mr. E. F. Taylor, and Mr. F. Skene were inspectors.

The Royal Commissions have issued ten reports, nine of these are in folio, and extend to 7250 double-columned pages, of which 1551 are occupied by elaborate indexes. With the tenth report began an issue in octavo, of which the parts sent out extend to 1935 pages, of which 197 are index. Published in an ordinary octavo form this matter would fill sixty volumes, and the index alone would occupy about ten. These details will show not only the extent of the labours of the Historical MSS. Commission, but also the impossibility of dealing in a brief article in any exhaustive manner with the mass of information thus brought together. The volumes are in fact a mine from which labourers in many departments will dig golden nuggets. It would be difficult almost to name a subject upon which they do not contain information. Saxon charters, State Papers of Burghley, letters of Cowper, Byron, and Burns, every variety of document is chronicled. Nor are these records all of solemn passages of history, for with grave matters we have Nell Gwyn's advice to the King, that in order to obtain money from Parliament he should treat them with "a French ragoe, Scotts collopes, and a calves head;—at which His Majesty laughed, and was well pleased." So too we read of Mrs. Tofts, the actress, on a Sunday visit at the Duke of Somerset's, selling kisses. There were about

thirty gentlemen, and every kiss was a guinea; some took three, some five, "but none less than one."

Amongst the great houses of the kingdom there are many rich in historic evidences. Such in a pre-eminent degree is the collection of the Marquis of Bath, at Longleat, which Mr. Harwood characterised as one of the finest he ever examined. There are numerous early English MSS.,—one of the fifteenth century containing the quaint story of William Weston, the monk of "Savenay," who went into a garden, listened to the birds, and found that three centuries had passed away during his reverie, and so had an exemplification of the lasting joys of Paradise! —cartularies, chronicles, royal letters, poems by Chaucer and Lydgate. There is the French poem written by Edward II, whilst a prisoner; "the Red Book of Bath;" extracts from Privy Council Books of Henry VIII and Charles II; letters by Queen Elizabeth and her councillors, including several about the impending execution of Mary Queen of Scots; a translation of a romance by Christine de Pisan, by Sir Stephen Scrope, Falstaff's son-in-law; the original MS. of Whitelock's account of his Swedish Embassy; the official letters of Coventry and Thynne, from the same court; hundreds of letters, official and otherwise by Prior, Swift, Atterbury, and others. A letter to Prior contains the famous portrait by Dryden of Jacob Tonson—

> "With leering look, bull-faced and freckled fair,
> With frowsy pores poisoning the ambient air,
> With two left leggs and Judas-coloured hair."

There is a letter by Thomas Cromwell, instructing the English Ambassador to France as to how he should justify the divorce of Queen Katharine. Letters by Wotton and Bacon, side by side with the disgustingly fulsome epistles of the Duke of Buckingham (Steenie, the slave and dog) to James I. Nor are there wanting the elements of romance. Here is an account book of the unfortunate Arabella Stuart, and on the last page may now be read the entry of her marriage, and the names of those who witnessed it. This leaf had been pasted down, but Canon Jackson, suspecting that there was writing beneath, lifted it, and so revealed the secret which the unhappy lady, two centuries earlier, had confided to its keeping. There are letters by most of the prominent actors in the strange tragedy which Sir Walter Scott has immortalised in "Kenilworth." The papers of Lord Abergavenny throw considerable light upon the political

methods of George III, and show that the fund under the management of John Robinson (the peer's ancestor) was not devoted to bribing M.P.'s, but to the purchase of seats for those known to be favourable to the Ministerial policy. The price of a close borough was between 2,000*l.* and 3,000*l.* Lord Falmouth, however, with a view to keep up the price, insisted upon being paid in guineas for his Cornish pocket boroughs. Lord Eglington's papers reveal the fact that Joanna, the third daughter of James I of Scotland, was dumb. From this Silent Lady of Dalkeith descended both the third Earl of Eglington and his wife, in whose divorce proceedings the fact was elicited.

Dr. Fraser calls attention to a document which, although of little importance in itself, shows the value of preserving old papers. On 15th December, 1642, John, sixth Earl of Cassilis, wrote inviting the Earl of Eglington to be present at the funeral of the writer's wife, who was Lady Jane Hamilton, daughter of the first Earl of Haddington, and married to Cassilis in 1621. Regarding this lady a romantic story has been constructed, telling of her elopement with a person styled Sir John Faa, of Dunbar, or, according to others, with a veritable gipsy, named Faa. During her husband's absence at the Parliament at Westminster, it is said the gipsies "coost their glamourie owre her," and she went off with her "gypsie laddie." The pair were, however, caught, and were punished, the knight by hanging, and the lady by imprisonment for life. Such is the story of which more than one version exists; but it is proved to be false, and the aspersion on the lady's character shown to be wholly undeserved by this letter now reported on, in which her husband speaks of her with affection after twenty-one years of married life, and which, moreover, is written before the Earl's departure for Westminster in 1643.

In the papers of Captain Stewart, of Altyradyn, there is a deed executed at Flint in 1302–3, which is valuable from its unique character as showing the adoption of an heir. This method, although fallen into disuse, or never general in Europe, is still in vogue in the Indian Empire, and one of the privileges most eagerly desired by the native chieftains is the right to adopt a successor to the inheritance in the event of the failure of heirs. Amongst other documents are letters bearing the London penny postmark, and ranging in date from 9th December, 1681, to 1754.

No private collection is richer in historical material than that

of the Marquis of Salisbury. It is not too much to say that "the Cecil MSS. preserved at Hatfield House, although forming a private collection, may indeed be justly regarded in the light of a national treasure." They are in fact a detached portion of the State correspondence of England during the administration of Sir William Cecil, afterwards Lord Burleigh, and his son, the first Earl of Salisbury. The want of a definite place of deposit, and the troublous times of the seventeenth century, sufficiently explain the manner in which what really form part of the national archives remained in private hands. The Public Record Office now has one series, the Burghley Papers in the British Museum is a second, and the Cecil Papers at Hatfield is a third, and the information is so inextricably interwoven, that the draft may be one, the letter in another, and the reply in the third; nor are instances wanting in which one document is divided and separated. The progress of Continental affairs is described in newsletters sent to Burghley by his agents. Two letters, written by Wolsey after his fall, express grief and anxiety to his former secretary, Stephen Gardiner. There is "some scandal about Queen Elizabeth," before that imperious lady ascended the throne. Some "considerations" offered to Parliament, in 1559, include proposals for the revival of a statute condemning to slavery "idle persons and vagabonds." No merchant was to purchase above 50*l.* a year of inheritance "except aldermen and sheriffs of London, who, because they approach to degrees of knighthood, may purchase to the value of 200*l.*" No one under the rank of a baron was to keep a schoolmaster for the education of his children, since "that was the decay of the universities and common schools." The doctrine of heredity is asserted with considerable emphasis in the proposal "that none study the laws, temporal or civil, except he be immediately descended from a nobleman or gentleman, for they are the entries to rule and government, and generation is the chiefest foundation of inclination." The personal tastes and private life of Cecil are illustrated in a variety of documents. There are numerous letters and papers referring to the beautiful and unhappy Mary Queen of Scots, including John Knox's famous character of her, and *two* of the "casket letters," about which there has been so much and so fierce controversy. The plots and conspiracies for her release, and for the deposition of Elizabeth, are made clear, as also the vacillation in the temper and policy of the English Queen as to her dangerous rival. In another direction may be

named a letter from Alva to the German Emperor, in which he defends the executions of Horn and Egmont, and protests against the "perverted nature of certain wicked people," which leads them to give the worst interpretation to everything. The marriage settlements for the proposed marriage of Sir Philip Sidney are of interest. The social and religious condition of the England of Elizabeth are illustrated in a lengthy series of letters from the Bishops to the Privy Council, and show that the Reformation had not gained a very firm foothold in some parts of the country.

Whilst the great collections at Hatfield and Longleat are matchless, there are others of lesser importance perhaps, but yet of great value, such as that of Viscount Gormanston, with its illustrations of Anglo-Norman Ireland, and the Welsh relations of the Geraldines. There is scarcely one of the many private collections named in these reports that does not contain documents of great interest. The MSS. of Mr. F. Whitgreave, of Burton Manor, Stafford, includes a relation of the journey of twelve English students from St. Omer to Seville in 1622. While at sea they were taken prisoners, first by a Dutch ship, and afterwards by an Algerine pirate, which carried them to Algiers, where they were exposed to much persecution, having been sold as slaves. Wadsworth, one of their number, published a quarto volume at London in 1629, which professes to give an account of these transactions; but his narrative differs in many important particulars from the present MSS. Amongst Sir Gerald Fitzgerald's papers at Thurnham Hall, Lancashire, is a decree of divorce in the reign of Henry VII of Thomas Heskette, of Rufford in Crofton, from Elizabeth Flemming, his wife; the marriage having been a mere form, forced on them in their minorities, and always protested against by the wife. This subject is illustrated by some deeds in the possession of Mr. R. E. Egerton Warburton, of Arley. On the subject of marriage, where either bride or bridegroom, or both, were of tender age, Mr. Beamont well remarks, that if a father meant to prevent the wardship and marriage of his children from being sold after his death, he had no other way, as the feudal law then stood, but to contract them in marriage while he lived. A distinct type of these private collections is afforded by the MSS. of the family of Gawdy, formerly of Norfolk. These papers are now in the library of Mr. Walter Rye, and consist of 1,222 documents, chiefly letters of family and general news, and ranging in date

from 1509 to 1675. One of the earliest letters mentions the performance of the Cæsarean operation, followed by the death of mother and child. The widower averred that the babe was born alive, and that he was therefore entitled to claim tenancy by the courtesy in her lands. A case of witchcraft in 1600 is recorded in a sensible letter of Augustine Stywarde, who tries to obtain the release of the suspected witch, on the ground that her fits are merely the effect of disease. The case of John Bennett, of Wymondham, is a strange one. He had been committed to the Tower as a debtor, but was allowed a year in which to travel with his keeper, in the hope of raising from his friends enough money to discharge his debts. This enlargement is said to be in virtue of the privileges of Her Majesty's Tower. An ingenious attempt at fraud is recorded in the case of one Swift, who, having been brought up by his master's charity, was not content with his wages, and having lent ten angels to his master's daughter—then under fourteen—obtained her signature to what she supposed was a promise of repayment, but which, in effect, was a contract of marriage.

The official collections of MSS. are as numerous as they are varied; perhaps the most important are those forming the archives of the House of Lords. These range from the autograph of Selden's "Baronage" to drafts of an Act touching tanners, curriers, shoemakers, and other artificers "occupying" the cutting of leather. There is the letter of James I to the Pope, and the letter of the same monarch to his "littill beagle," Cecil.

The documents of old municipal corporations are, if less important, fully as interesting. The respect due to or claimed by constituted authorities is illustrated by an order of the Corporation of Bishop's Castle, who in 1613 decided that no inferior person conversing in public with the bailiff or any of the fifteen head burgesses, or their wives, should presume to have his head covered. In the books of the Corporation of Rye we read:—"Paid Thomas Barbur, *alias* 'Netherland,' on the day when the men of the Lord Warrewicke entered the town with a strong band, and took down the quarter of the man, and buried it in the churchyard, 2*d*." This is an incident connected with the Wars of the Roses. The necessity of paying court to those who had or were thought to have influence, is illustrated in another entry:—"Paid for the expenses of Thomas Grevill and his son at supper in the mayor's house on Saturday, and at dinner on

the morrow, to labour for us at Tenterden for our yearly payment, which was so in arrear, seeing that the same Thomas was great with them of Tenterden, so that we might be the sooner contented as to our said yearly payment, 6½*d.*" Of the Corporation of Lydd, Kent, we are told that in the earlier part of these entries, the gifts recorded as made by the Corporation to men in office, both great and small, must have absorbed a very large proportion of the revenue derived from the "scots," or rates, and taxes under other denominations, which were being continually exacted. Troops of minstrels, attached to the households of the great, and players from the surrounding country, on their own account, were continually visiting the town, receiving largesse and refreshments, bestowed with no sparing hand. The "Boy Bishop," with his companions, came over from New Romney on St. Nicholas' Day each year (the church of which had St. Nicholas for its patron saint), and was rewarded with fees and feasting, on an equal scale of liberality. Candles were kept burning in the Common House on the night of the Nativity of John the Baptist (Midsummer Day) and St. Peter's Day. Watchfires were lighted upon the shore ever and anon, straw, reeds, and wood being carted thither for the purpose. Men were kept on the watch in the church steeple for days and weeks together, to give first notice of the approach of a foreign foe; early notice of "Frenchmen" being now received from, and now sent to, the other Cinque Port towns. Frequently we read of "cries made," or proclamations, at the church-style, as also at the sea-side at times; often in reference to the necessity of calling in the cattle from the fields, possible marauders being, no doubt, near at hand. Soldiers are quartered upon the town from time to time; broils and "debates" arise in consequence, and, with frank avowal, the bribes are entered in the book which were paid to their officers to get rid of them. The bailiff and jurats take refreshment occasionally, while in council, at the Common House, the charges being defrayed out of the town moneys; but, with a commendable simplicity, they are mostly contented with dry bread and a draught of either ale or beer (a distinction between the two beverages being clearly drawn). Deputations of the bailiff, common clerk, and jurats are continually leaving the place, on horseback, for the transaction of the town's business, at London, Dover, Sandwich, or Canterbury; one of such deputations even following Jack Cade to London, with the present of a porpoise, in order, no doubt,

to conciliate his favour, in case he should finally get the upper hand.

The Wells Cathedral MSS. offer another type. They are partly original documents and partly transcripts, entered from time to time into their books by the officials. Although portions of the Liber Albus and Liber Ruber have been printed, this is the first time that they have been completely calendared. The contents are seen to be exceedingly varied, Papal bulls, Saxon charters, manumissions, Parliamentary election returns, &c. The police use of excommunication is exemplified by the cursing with bell, book, and candle of sundry poachers, and in the sentence on R. Gyan, of North Cory, who had to submit to eighteen processional whippings on six several Sundays in Wells Cathedral, and to similar punishment in his own church on six other Sundays. The example of John dictus frater, Vicar of Wells, who resigned his post in 1259 because he felt his want of learning and hoped to remedy it by study in the schools, is as commendable as it is rare. In 1252 there is a note of the "Manumission of John de la Sande; his freedom has been bought from Dean J. Saracenus by Radulf de Chyn, Vicar of Wells, with one bisant of gold." The Bishop of Wells in 1533 freed the family of Goodriche, of Banwell, *ab omni jugi servitutis villenagii*. The letter of thanks sent by Henry VIII on the election of Thomas Cromwell as Dean of Wells is a curious document, and further examples of the pressure of the Court may be seen in the documents as to the dealings of the Duke of Somerset with the bishopric. Another interesting matter is the resolution of the Chapter in 1684 not to renew the holding of any tenant who was a Dissenter. The Customs of the North Curry Feast show the elaborate fashions of the manorial celebrations, and from the circumstance that the Dealers of the Feast had, when they came to the door of the Reeve of North Curry, the following song :—

> "King John he was a noble Knight,
> I am come to demand by right,
> Open the door and let me in,
> Else I'll carry away my money again;"—

and that a mince-pie effigy of that King was part of the feast, it has been conjectured that the festival in its institution had some relation to the granter of the Great Charter. "Two candles," we are told, "weighing a pound each, are lighted, and until they are burnt out, the Jacks (*i.e.*, the representatives of

the lords of the manor of Knapp and Slough) and their attendants have a right to sit drinking ale. After dinner, the regular toasts are—To the Mortal Memory of Xing John; the Real Jack of Knapp; the Real Jack of Slough. Afterwards, when toasts are given, the Jacks give away the bread and offal, beef and pork, to the second poor. When they have drunk as much as they like, they depart; the Jack of Slough or deputy holding the stirrup of the Jack of Knapp or deputy, for him to mount, and receiving a shilling as his fee. In 1582 the Master of Wells Grammar School is admonished for taking his pupils "unto Axbridge to playe in the parish church theare," presumably in some survival of the mystery plays. In 1586 fasting and prayer was enjoined upon William Gale, because he "did openlie in disguised order, in the companie of others, go in a maske with a visarde upon his face into the parishe of Pilton, and from thence to Crascombe, to the evil example of others servinge in the same church."

Amongst the documents of the Cathedral of Canterbury, we have only one for the benefit of book-lovers:—1337. De defectibus librorum Ecclesie Xpi. videlt. dil Sci Gregorii, A.D. MCCCXXXVII. This is a memorandum of the annual inspection of the Library. All the books absent from the shelves are recorded, and in every case the name of the person, monk or secular, who had borrowed the volume, is subjoined, so that the *defectus* does not indicate the loss of any one book. Two or three Lives and Miracles of St. Thomas, Bryto (and some others), super Bibliam, Logica Vetus et Nova, comprise about all the literary contents of the list, the large balance being made of Service Books. The archives of the See of Dublin include the collection known as the "Crede Mihi," which contains documents ranging from 1178 to the latter end of the thirteenth century, including deeds by John and his successor, Henry III, not elsewhere extant. The Archives of Ossory include Latin hymns written by Bishop de Lederede, and intended to be substituted for the less edifying songs then in use. This pious prelate was the chief prosecutor of Dame Alice Kyteter for witchcraft in 1324.

In this brief notice it has been impossible to do more than gossip upon the immense material collected by the Historical MSS. Collection, and a large number of important collections have to be passed over even unnamed. This paper will have served its purpose if it impresses the reader with a sense of the value of this new help to the study of history.

WILLIAM E. A. AXON.

THE PACIFIC ISLANDS.

QUESTIONS of high international diplomacy have recently arisen in connection with the Pacific Islands, and brought what was not so long ago a region of romance, adventure, and sporadic missionary and commercial enterprise into the domain of practical world politics. English, French, German, Spanish, and American interests have come into collision with each other, and a precise partitioning of areas which lay vague and unappropriated has been attempted and to a large extent realised. Conventional lines, however, and recognition of the haphazard *status quo* play as great a part in the political map which has resulted from the scramble for the Pacific as in that which was produced by the scramble for Africa. It is not merely the gradual exhaustion of fresh fields of enterprise that has brought the Pacific commercially and politically to the front. Human activity has been growing more intense all round the enclosing framework of that vast oceanic area. To realise the position of affairs, a rapid glance at the great physical and political facts of the Pacific environment will suffice. Extending 9,000 miles from north to south and 10,000 miles at its widest from east to west, this largest expanse of water in the world is limited on the one side by the remarkably regular line of the American continents, and on the other side by long chains of islands which form the outworks, so to speak, of the submerged platform of Asia, Indinesia, and Australia. Physically the connection of the great island world is much closer with the Asiatic than with the American side. The larger islands and the more numerous clusters lie in the eastern half of the ocean, and one might almost imagine that the forces that produced them had started in the west and gradually exhausted themselves as they advanced eastward. Towards the north-east and the south-east, more especially, there are enormous tracts throughout which the surface of the ocean is unrelieved by a single speck of solid land. And even where the islands are sown with most profusion, they are generally so small, and the spaces between them so great, that if it were not for the printed names (often requiring to be inserted in duplicate), the ordinary map of the Pacific would look almost empty, except where some of the more important groups are situated. Even where the islands

on the map appear gathered into clusters or archipelagoes, to which the geographer has found it convenient to give distinct names (as the astronomers of all ages have done to their constellations), the actual distance from island to island is frequently so great as to render each practically independent of all, especially during the period prior to European navigation. To one who has only considered the multitudinousness of the Pacific Islands, it is quite startling to learn how small a part of the earth's surface they really occupy. It has been calculated by Messrs. Behm and Wagner, the great German authorities on such matters, that the whole of the Oceanic Islands massed together would not cover more than 67,833 square miles, that is, they would form a territory only about one-third the size of France, or one-fourth the size of New Guinea. This, of course, is exclusive of New Zealand, though it is ethnographically Polynesian ; and the estimate is only an approximate one for several reasons. First, an accurate measurement of such irregular fragments of *terra firma* is always difficult ; secondly, in the majority of cases trustworthy surveys have not been made ; and, thirdly, it is probable that while on the one hand, in spite of the "weeding" that our charts have undergone, there may still be islands marked where none really exist, so on the other there is reason to suppose that further exploration will considerably increase the number. Mr. Wilfrid Powell indeed declares his belief that there are "hundreds, nay thousands, of islands in the Pacific never seen by white men save in the distance, and many, there is but little doubt, never seen at all." In one instance, where only a rock was marked in the map (and far away from its true position), he found twenty-one islands, and the finest race of inhabitants he had seen in those seas ("Wanderings in a Wild Country, 1883"). And a more recent writer, Mr. Romilly, bears similar evidence, though in phrases less suggestive of exaggeration.

In spite of their number and the wide area over which they are diffused, the Pacific Islands, with but few exceptions, belong to either one or other of two characteristic types which, superficial contrast notwithstanding, owe their origin ultimately to the same cause. The floor of the ocean—at present situated at depths varying from 2,000 to 4,000 fathoms, has given way at intervals and allowed the volcanic forces to extrude the magma imprisoned beneath the crust. The Pacific Islands are simply the summits of those volcanic eminences which either

directly by the explosive energy of the volcano, or subsequently by the silent masonry of the coral-polyp, have been raised above the level of the sea. Multitudes of similar upheavals of less elevation are known to exist. Mauna-Kea, in Hawaii, is the highest peak in the Pacific, reaching a height of 13,895 feet; and Haleakala, in Maui (an island of the same group) slightly exceeds 10,000 feet. Nor has the Pacific area attained any great degree of quiescence and stability; the eruptive forces are still at work over a wide region, and movements and discharges on a vast scale are rather to be anticipated than the reverse. It is well known that the crater of Kilauea, in Hawaii, is the largest active orifice on the globe, being no less than 9 miles in circumference, and that its near neighbour, Mauna Loa, has, in quite recent times (1868), had eruptions so violent as to send the sea-wave dashing against the Californian coast 2,000 miles away. And with the disastrous explosions of Rotomahana still fresh in our memory, we do not need to be reminded that New Zealand is another "hearth" on which the subterranean fires are still aglow.

But it is worth while pointing out how (apart from these two great centres, the one in the north and the other in the south) the Pacific Islands contain a number of volcanic vents and safety valves, lying along a central ridge about midway between New Zealand and Hawaii. The Ladrones or Marianas too are all of volcanic origin, and their mountains contain several active volcanoes. All along the north side of New Britain is a succession of volcanic summits, several of them more or less active. In the north-east is the group of the Father and his Sons; the Father being a considerable mountain, perpetually belching as if a fiery pulse were stirring in the earth. Another volcano lies in Duportail Island opposite the Father. Farther to the north-east are three similar mountains, styled the Mother and her Daughters. During an eruption from a crater at the foot of the Mother, witnessed by Mr. Powell, an island about 2 miles long and 70 feet high was raised from the sea. The eruption lasted for a month, and the whole of Blanche Bay was covered so thick with floating pumice that it was impossible for a vessel to force a way through. Cape Gloucester is one mass of active craters. New Ireland, the island next to New Britain, is, as far as is known, characterised by the absence of volcanoes; but Bougdinville, the largest of the Solomons, has an active crater among the lofty summits of the interior. Tinakula, in the Santa Cruz

group, has always been found in a state of activity since its first discovery by Mendoza.

If, however, the dwellers in the Southern Seas are indebted for the first construction of their island homes to the Titanic forces of the subterranean world, they are equally indebted for some of the most peculiar and attractive features to the coral polyp. The reef-building polyp, as is well known, is capable of living and working between extreme low water-mark and depths of from 20 to 25 fathoms in all seas where the mean winter temperature does not sink on an average below 66° or 68° Fahr. The Central Pacific, however, is the scene of its most abundant and effective activity; there it plays the part of no mere decorative artist, but boldly enters into architectural copartnery with the volcanic forces, and throws a strong and self-renewing rampart of fretted marble around the wave-beaten rocks. According to the old Darwinian theory, the process by which the various forms of coral-rimmed islands were formed was briefly as follows: As soon as the mountain summit was heaved above the sea and became an island, the polyps began to build their *enceinte*, and before long produced what is known as a fringing reef. But a gradual subsidence took place; and as the island slowly settled down, the labours of the polyps continually kept the surface of the reef up to low-water level. Thus the central portion diminished in size until it was "reduced to a mere peak in the centre of a lagoon," and the fringing reef had been turned into an encircling barrier reef. A further subsidence finally brought the central portion below the level of the sea, and the reef alone was left enclosing a lagoon, and thus forming what is known as an atoll.

But beautiful as it is, this theory has been displaced by another as simple, which does not require the hypothesis of gradual subsidence. To quote (not quite *verbatim*) from Mr. John Murray, the formulator and chief exponent of the newer theory: There is no evidence of any extensive submerged continent or mass of land, such as Darwin's theory requires. Whether built up sufficiently high to rise above the surface of the sea, and thus form islands, or brought up only to varying heights below the sea-level, the volcanic eminences tend to become platforms on which coral reefs may be formed. On the one hand, the erosive action of waves and tides tends to reduce all volcanic summits to the lower limit of breaker action; and, on the other, submarine eminences may be brought up to the

depth-zone of the reef-builders by the deposit of volcanic and organic detritus, falling from the surface as well as through the agency of organisms secreting lime and silica which live in profusion at great depths. Darwin was not aware of the great number of submerged cones which recent soundings have made known, nor of the enormous abundance of minute calcareous organisms in the surface water, and of the comparatively rapid rate at which their remains might accumulate on the sea-bottoms. Coral reef-buildings starting on a bank, whether formed by elevation or subsidence, tend ultimately to assume the atoll or barrier form. When the coral reef or colony approaches the surface, the central portions are gradually placed at a disadvantage as compared with the peripheral parts of the mass, in being further removed from the food-supply brought by the oceanic currents, and they consequently dwindle and die. In proportion as the reef approaches the surface, the centre becomes cut off from the food-supply, and the conditions become increasingly uncongenial. At last an outer ring of vigorously growing coral encloses a central lagoon. The windward side of the reef grows most vigorously, because that is the direction in which the currents bring the food supply. As the atoll extends seawards from vigorous growth, the lagoon becomes larger, chiefly from the removal of lime in solution by the action of the carbonic acid in the sea-water which flows in and out at each tide. Thus far Mr. Murray. There are two great atoll regions in the Pacific, the range of Archipelagoes usually known as the Carolines, Gilbert, and Marshall Islands in the north-west, and the Society Island and Low Archipelago in the south-east. Both may be considered as the extreme ends of one great atoll zone. A limited number of coral islands show evident signs of having been raised, sometimes by several distinct upheavals. The island of Mare (Loyalty Islands) is taken by Mr. Whitmee as a good type of its class. "Here," he tells us, "between the shore and the coral cliffs there is a tract of level land varying from a few yards to perhaps one-fourth of a mile or more across. On this level tract the people mainly dwell. At the back of this there rises a perpendicular wall of coral in some places as much as 100 feet high. The cliff is water-worn, and has in it large caverns, showing that for a long period it was the coast-line. Still further inland there are two similar though smaller cliffs, indicating that there were three distinct upheavals. At present the island is fringed with a coral reef,

and if it were now to be lifted from 50 to 100 feet the present coast-line would form another cliff, while the present coral reef would form another low tract similar to that on which the people now dwell."

For a long time the Pacific Archipelagoes were generally described vaguely as the South Sea Islands. Subsequently the name Polynesia, the "Region of the Many Islands," was adopted in the same general sense; and more recently a threefold division has been adopted, Polynesia, Melanesia, and Micronesia, determined mainly on ethnographical distinctions, though only one of them embodies an ethnographical fact. *Polynesia* in the limited use of the word may be defined as all the islands included in a rude triangle, the three corners of which are marked by the Sandwich Islands south of the tropic of Cancer, by New Zealand situated in the south temperate zone, and by Easter Island, a little speck in the ocean about 4,000 miles south-east of the Sandwich Islands, and about as many east-south-east of New Zealand. *Micronesia*, the "Region of the Little Islands," is comprised in a kind of oval ring, cutting the equator only in its south-east corner, and extending from 135° to 180° approximately west longitude. *Melanesia*, or the "Region of the Islands of the Dark Coloured Race," is the common name of all the islands extending from New Guinea eastwards to Polynesia.

The Polynesians (using the word in its more restricted sense)—or as they have been variously designated by different authorities, as Malayo-Polynesians, Indo-Pacific, Mahori (Ranken), or Sawaori (Whitmee)—are a light brown race, tall of stature, brachycephalic, and scanty beard, and leptorhine, or with a thin nose. The parent stock would seem to have come from the Indian Archipelago, and according to Mr. Whitmee, Samoa was probably their first settlement in Polynesia, but this and all assertions about their prehistoric movements are of course highly hypothetical. They appear to have attained a considerable level of civilisation before they reached the Pacific, which if Mr. Fornander's elaborate investigations are to be trusted, took place about the close of the first or second century.

New Guinea and the islands of Melanesia, as far east as Fiji, are on the other hand mainly occupied by the dark-skinned Papuan race, which is distinguished by frizzly hair and well-developed beard, and a dolicocephalic cranium. But throughout those islands there is a certain intermingling of Sawaiori blood. The Micronesian Islands are inhabited by a very mixed race, to

which Mr. Whitmee gives the conventional name of Tarapon, formed of the first syllables of Tarawa and of Ponape, respectively the name of one of the Gilbert and one of the Caroline Islands. Sawaiori influence can be distinctly traced.

The Polynesian or Sawaiori languages have a good deal of resemblance to each other, but do not appear to be so similar as to allow the natives of the several distinct groups, such as Samoa, Hawaii, Tahiti, &c., to understand each other. In some languages, as notably in Samoan and Tongan, certain words are employed only in addressing certain ranks of society; and the custom prevails of disusing or tabooing either during his life or after his death those words which form part of a chief's name. In the more eastern islands (Hervey, Tahiti, &c.) there is no such chief's language. Sometimes the languages or dialects have a very limited area: thus in the Hervey Islands there are as many dialects as islands, the result of their great isolation. The Melanesian languages, according to Mr. Codrington, who has recently published an important study of the whole group, are homogeneous and akin to the Sawaiori, the phonetic characters of the Melanesian being fuller. He treats of thirty-four dialects, and mentions that "Vana Lava, an island only 15 miles long, had before its depopulation by the labour trade fifteen distinct dialects recognised as distinct by the inhabitants." The Mota language, or that spoken in the island variously known as Mota, Aumota, or Sugar-loaf Island, is used as the common language in the Melanesian mission. In this island there is a special song dialect.

No general description can be given of the conditions of human life throughout the Pacific. In every sense of the word the islands and groups remain islands and groups, each with its own historical and political as with its own botanical and zoological peculiarities. In one place, as in Fiji, we have Christian prayers rising morning and evening from every home in a village; elsewhere, as in New Britain, a shipwrecked crew may still be accepted as a providential filling of the communal larder. In some islands there is no trace of any human occupation; in others, as in Easter Islands, are unique remains of a mysterious and vanished civilisation.

Instead of attempting a detailed *résumé* of what is known about the several island-clusters, we shall devote ourselves to a rough sketch of one aspect of the Pacific, viz., its value as a field for European commercial and political enterprise. One of the first

pursuits to attract a considerable number of secular Europeans to the Pacific was whale-catching. What gold was to California the whale-fishing was to the Sandwich Islands. But the harvest of the sea was soon exhausted. Though it was only about 1819 that the enterprise was initiated the whale fishery was practically exhausted about 1865. In 1852 no fewer than 519 whalers visited the harbour of Honolulu alone; in 1881 this number had sunk to 19. The whaler's life was, of course, a wild and adventurous one, with its full share of hardships, but with chances of a rapid attainment of wealth, and a certainty of long intervals of careless inactivity. To the natives of the Pacific, with their love of the sea and their laziness, this kind of spasmodic labour, spiced with risk and revelry, offered abundant attractions, and the whalers found no difficulty in recruiting their crews.

Another rough and adventurous trade which brought some of the most reckless and immoral specimens of European civilisation into direct contact with the natives was the procuring of sandal wood. This sweet-smelling wood, in such favour both in China and India, is the product of several genera of Santalaceæ formerly found in abundance in the Sandwich Islands, in New Caledonia, Tahiti, and elsewhere throughout the Pacific. Whenever it was met with it became the object of the most improvident exploitation. In the first and second decades of the century Kamehameha of Hawaii received annually it is said some 400,000 dollars for sandal wood. But the sandal-wood tree has now become scarce, and, except in New Caledonia where artificial plantations have been formed with some measure of success, the only legacy of the trade is probably here and there some old hand who solaces his declining years with the recollection of ancient orgies. While it lasted it was the curse of the Pacific, and the brutalities it occasioned were a fitting prelude for those which have since characterised the "labour traffic."

Let us now take a rapid glance at those resources of the Pacific which still afford a field for the employment of European or botanical capital. Somewhat of the same speculative character which gave a certain charm to the whale-fishing and the sandal wood hunting is also attached to the fishing-up of the pearl-oyster. Most of us have heard of the pearl fisheries of Torres Straits, though the name of Thursday Island, the administrative centre of the British settlement, with the little town of Port Kennedy, will be sought for in vain in most even

of our more modern gazetteers and atlases. Though Thursday Island was chosen as the seat of government instead of Somerset only in 1882, it is already a flourishing little place visited by about twelve steamers monthly, and connected with the mainland by a submarine cable. In 1883 upwards of 200 boats were engaged in the pearl and *bêche-de-mer* fisheries, which were carried on by about 1,500 coloured men of all races. The yield of pearl shell was 621 tons, which at an average rate of 130*l.* per ton represents a total value of nearly 81,000*l.* Mr. Romilly gives an amusing account in his recent book on the Western Pacific of the way in which the first class native diver is too often at once pampered and plundered by his European employers.

But the Torres Straits fishery, although worked by natives of the Pacific Islands, belongs rather to Australia both geographically and economically, and our present concern is with such pearl fishing as has long been carried on in the Cook (Harvey), the Society, Tuamotu, Tubuai, and Gambier Islands, as well as at Fiji, Tonga, and Samoa. M. Bouchon-Braudely in his 1884 report boldly states that in the archipelago of Tuamotu France possesses, though in quite an undeveloped state, the vastest pearl fishery in the world. And he tells how wherever he landed on any of the twenty-four islands that compose the group the natives used to try surreptitiously to dispose of the pearl which they had managed to conceal from the eyes of the regular trader. He calculates that as 600 tons of mother-of-pearl are annually obtained at the Tuamotu Islands, the pearls themselves are obtained to a value of 600,000 francs. The Gambier Islands too produce mother-of-pearl worth from 250,000 to 400,000 francs per annum, and about twenty schooners visit Mangareva, the chief town of the group, for the purpose of purchasing it.

The Tuamotu diver, says M. Bouchon-Brandely, is the best diver in the world. The natives of India employed in the fisheries of the Persian Gulf and Ceylon cannot be compared to him. The Indian descends by means of a weight of 20 to 25 lbs. attached to his feet, his waist-belt contains 7 or 8 lbs. additional ballast, he plugs his eyes and ears with cotton steeped in oil, puts a bandage over his mouth, and having reached a depth of 40 feet returns to the surface by means of his rope—from 50 to 90 seconds being the time he has been under water. The Tuamotuan, on the other hand, after a few vigorous inspirations

and exhalations takes a long breath and drops feet first into the sea. He may reach a depth of 25 to 30 fathoms, will remain under water two or three minutes, and return to the surface without any artificial aid. The fishery in the Tuamotus is carried on throughout the year, though in June, July, August, and September the coolness of the water confines operations to the afternoon. As in the Torres Strait the lagoons are over fished, and in spite of closed seasons (rahui) the pearl oyster is rapidly becoming rare. But in all probability artificial breeding will be adopted with success.

A product of much more value as the basis of a sound and trustworthy trade is what is known as copra. This is the dried kernel of the cocoa-nut, which is brought to Europe and crushed for the sake of its oil. The cocoa-nut tree is one of those most freely distributed throughout the Pacific, its feathery tops fringing many of the atolls on which hardly another tree has established itself. How rapidly the trade in this article has increased is shown in the following table, which we extract from an article "On the Development of German Interests in the South Seas" in the *Deutsche Kolonial Zeitung*, June, 1886.

Nationality of Exports.

Islands.	German.	English.	American.	Various.	Total for 1884–85.	Total for 1879–80.
Tonga . . .	5,200	1,800	—	—	7,000	3,500
Samoa . . .	2,400	300	500	—	4,000	3,000
Union . . .	500	300	—	—		
Ellis . . .				Chinese.		
Gilbert . . .	3,500	—	400	600	5,400	
Marshall . .		100	600	Hawaiian. 200		
Caroline . .						
Bismarck-Arch.	1,650	—	350		2,000	3,500
Solomon . .	—	300	300		600	
New Hebrides.	—	—	—	French. 700	700	
Totals . .	13,250	2,800	2,150	1,500	19,700	10,000

The figures are approximately the number of tons (each = 2,240 English pounds). The value of the copra at the place of export has sunk from about 13*l.* per ton to 11*l.* 10*s.* between the two dates referred to in the table, so that while the quantity of copra exported from the archipelagoes indicated has nearly doubled, the value of the trade has not increased in the same proportion. The Pacific Islands, like all other parts of

the world, where climatic conditions seemed favourable were brought to some extent into the service of the cotton planter, when the American War, by shutting off the normal sources of supply, sent the value of cotton rapidly up in the market. The plant is still cultivated with success in several archipelagoes. From Fiji, for instance, it was imported to England to the value of 1,345*l.* in 1885. In Tahiti the production in 1884 was rated at 13,850*l.* Other tropical plants which seem to promise well for the future are coffee (in Fiji, New Caledonia, Tahiti, &c.), sugar, tea, and vanilla. This last was grown in Tahiti to a value of 16,890 francs in 1883. Some of the fruits introduced into the archipelagoes by the missionaries have passed into the feral condition, and flourish with extraordinary luxuriance. Tahiti alone could supply endless stores of fresh oranges, marmalade, goyava jelly, and lime-juice. As the Chinese market has long been supplied with *bêche-de-mer* from the Pacific, so in the future some of the many kinds of edible fish which swarm in the lagoons may be found available for more than local consumption. New Caledonia seems to be the only island whose mineral resources are of economic importance to the world at large. Its nickel mines when they were first worked in 1874–5, changed the whole conditions of the market for that metal. Lead and gold have also been obtained.

In recent times the natural product of the Pacific Islands which has most attracted the commercial world has been neither its timber nor its pearls, nor its fruits, but its men. Labour is the great demand of Queensland, New Caledonia, and Fiji, and to some extent of Peru. The Oceanian, whether of Polynesia, Micronesia, or Melanesia, is naturally quite the reverse of laborious. Nature has been kind to him. Food is generally provided him in abundance with but little effort of his own. The climate enables him to exist in comfort with small attention to clothing or house-building. Consequently, he is by no means eager to respond to the call of the taskmaster, who says "Come and toil all day in my plantations." It is only when he acquires a fancy for the products of European civilisation in the shape of guns, iron tools, rum, and it may be wheaten bread (to which he is particularly partial) that he consents to leave his home for gold. But the planter is not a man easily contented with a negative, and his agents find it pays them perpetually to cajole and occasionally even to kidnap them. Mr. Romilly has recently given us an amusing picture of the professional recruiter who preferred

treachery and *finesse* to violence and massacre. "In places," he says, "where Jemmy was well-known the natives would recognise him a long way off, as he used to wear an eccentric dress for their edification. A tall conical-shaped cardboard hat and flowing calico robes was the get up, and his face was concealed by a black mask. Under his robes he had a waterproof bag, and he would occasionally refresh himself with a bucketful of salt water which he appeared to drink, but which was in reality poured into the bag. The only object of all this was to collect the natives round him, he was then always clever enough to persuade a good many to accompany him. In places where he was not known to the natives he had to adopt other tactics. For a time after landing on the shore he would sit still doing nothing. Then one of his favourite tricks was to get a stone and produce a box of wax matches. In the gravest manner in the world he would light match after match till the box was finished. The natives impelled by irresistible curiosity came closer and closer; at length a head was poked through the bushes, then another and another till a crowd had assembled. Still Jemmy would take no notice of them, but go on lighting match after match. The easy and rapid production of fire to people accustomed only to the slow process of rubbing two sticks together must have seemed wonderful in the extreme. Suddenly appearing to observe the presence of the natives Jemmy would gravely shake hands all round. When the boat arrived it would find him in the midst of a large crowd roaring with laughter at the admirable dodges he had for amusing them, for he was a splendid conjuror and step dancer." "I never kidnapped a native in my life" was his assurance about himself, "and there is not a native in the New Hebrides who would not be glad to see me." Thus far Mr. Romilly, and so much for the comic side of the labour trade. For its tragedy, unfortunately, we have not far to seek. Those who have read Commander Albert Hastings Markham's "Cruise of the Rosario" will recollect the instance of "Carl" and its kidnapping expedition in 1871. Dr. James Murray, passenger and part owner, gave evidence as follows, when the captain and one of the crew were indicted for murder. "We went on to several of the islands and captured the natives, generally by breaking or upsetting their canoes, and by getting the natives out of the water into which they were plunged. We smashed the canoes by throwing pig-iron into them, and then seized the natives in the water. In this manner eighty natives

had been collected; they were kept in the hold at night, and allowed to come on deck during the day. On the night of the 12th of September there was a disturbance heard below, but it was quieted by a pistol being fired over their heads; we heard no more of it then. On the following night the disturbance occurred in earnest, and the man on watch fired a pistol over the hatchway and tried to frighten them by shooting, as on the previous night. Other methods were tried to quiet them, but all failed. The men below appeared to be breaking down the bunks or sleeping places, and with the poles so obtained they armed themselves as with spears and fiercely attacked the main hatchway. The row appeared now to have resulted in a fight between the quiet natives and the wild ones; most of the latter were battering at the hatch. The attempts to pacify the men below having failed the crew commenced to fire on them; there was a general rush to arms, the danger being then imminent, and firing was kept up most of the night. I think every one on board was more or less engaged with firing into the hold; this firing lasted about eight hours; it was daylight before it was all over.

"Towards daylight, when we thought they were quite subdued, Mr. Scott volunteered to go down and pacify the remainder. He got down two rungs of the ladder when he was wounded in the breast by a long pole sharpened at the end; he ran up quickly and there was some firing again after that. During the night, by way of directing the aim, Mr. Wilson, one of the passengers, threw lights into the hold. At daylight all appeared to be quiet, and it was considered advisable to save what remained; the hatches were then thrown open and those who were alive were invited to come up; they did so. About *five* came up without help, the remainder were more or less helped up, being wounded. There were about sixteen badly wounded and about eight or nine slightly; in the hold there was a great deal of blood with the dead bodies (about fifty in number). The dead were at once thrown overboard; *the sixteen badly wounded men were also thrown overboard.* When I understood that it was the general opinion that these wounded men were to be thrown overboard, I said 'I do not care to look at it,' and I ran forward; I did not say I objected to it. There was a discussion as to what should be done with these men, and the general cry was 'over with them at once.' I saw that the men so thrown overboard were alive when they were thrown overboard; there were about

sixteen of them. We were at the time out of sight of land; it was impossible for the men in the state they were in to escape to the land. Some were tied by the legs and by the hands." It would be needless to offer a single word of commentary on such a narrative, the accuracy of which was confirmed by other witnesses, who added to the horror of the scene by telling how the miscreant Murray, at the time he was firing on the natives in the hold, was singing "Marching through Georgia." Yet this is no isolated instance; it is only one chapter in a record, page after page of which is lurid as if with the fires of hell. The massacre on board the "Carl" belongs to the year 1871; between that date and 1884 legislative and administrative authorities had been active, as we shall presently see, in attempting to render such things well nigh impossible, and yet the report of the cruise of the "Hopeful" as given by the Royal Commission appointed to inquire into the conduct of the labour trade is quite as bad as that of the "Carl." The "Hopeful" sailed from Townsville on May 3rd, 1884. At first the captain seems to have confined himself to simply decoying the natives by the aid of a renegade missionary teacher Eponisa. But gentle measures proving mostly ineffectual and at the best very dilatory, resort was soon had to violence of the most brutal nature. It seemed to become a matter of the most absolute indifference to the captors whether or not they wounded or murdered a dozen natives in their efforts to secure possession of one able-bodied labourer. At Ferguson Island, for example, when the natives becoming alarmed turned their course towards the shore, the ship's boats tried to run them down. Finding that he did not gain on their fugitives, the recruiting agent, McNeill, shot the steersman of one of the canoes. The unfortunate man was struck at the back of the neck; the bullet came out at his throat, and striking the man next to him on the right shoulder, the latter fell overboard and sank. The steersman fell on the canoe dead. All the others leapt into the water. The canoe was overtaken and cut with a tomahawk by McNeill, who then directed his crew to pick up the natives who were swimming about. Four were thus rescued (!) In the meantime Williams had been encouraging the crew to pull so as to catch up with another canoe containing six or seven natives. The latter made for the reef, which had only a foot or two of water on it, but before reaching it the canoe was cut by Williams and the

natives, as usual, took to the sea. A rifle was fired and one islander shot; five and a small boy were picked up by the boat. One of the "rescued" islanders jumped overboard from the boat, whereupon Williams followed him with a large knife in his hand. As the islander was going up on the reef Williams cut the poor wretch's throat and he sank into deep water. The two boats joined company, and the little boy *being of no use as a recruit* was cast adrift on two cocoa-nuts, which were tied together and placed under his arms. The little fellow was seen to slip from the cocoa-nuts and was drowned in the surf.

Is there any need to continue the harrowing tale? And when we recollect that of the depredations and massacres that have thus been committed by Englishmen and Christians (!) only a small number in all probability have ever had the light of day let in upon them, should it be a matter of surprise that the natives of the Southern Isles should have retaliated on the whites whenever they found them in their power, without too carefully inquiring the intentions of those on whom they wreaked their revenge? The white man has certainly paid a heavy penalty: and we should not wonder if all the monetary gain accruing from the captured natives should turn out, if a balance sheet were properly struck, to be more than cancelled by the loss inflicted by their fellow-islanders.

Here are some of the little items by which the natives have tried to wipe off old scores. We condense them from the instructive list given by Mr. Walter Coote in his most interesting volume, "Wanderings South and East, 1882."

January, 1875. Brig *James Birney*, taken at an island in Lord Howe's group. Nine white men and two natives killed.

August, 1875. Boats of H.M.S. *Pearl* attacked at Nitendi (Santa Cruz group). Commodore Goodenough and two seamen killed.

July, 1876. *Lucy and Adelaide*, a Brisbane labour vessel, attacked at St. Bartholomew (Espiritu Santo, New Hebrides). Captain killed; boat's crew all wounded.

February, 1877. Schooner *Douglas* attacked in the Louisiade Archipelago. Two white men killed and five wounded.

1878. Great rising in New Caledonia; over 150 white people killed.

April, 1878. Schooner *Mystery* lost a boat and crew at Opa or Leper's Island, New Hebrides. Government agent killed.

May, 1878. White trader murdered at San Christoval in Solomon Islands.

September, 1878. Boat's crew of *May Queen* cut out at Pentecost (Aragh), New Hebrides. Mate killed.

November, 1878. *William Isber* attacked at Brooker Island, Louisiade Archipelago. A Mr. Ingram, white crew, two Chinamen, and three natives killed.

November, 1878. White trader murdered at Langa, Solomon group.

March, 1880. White trader murdered at Opa.

May, 1880. Schooner *Esperanza* attacked off New Georgia, Solomon group. Three whites and four natives killed.

July, 1880. Schooner *Dauntless*, labour vessel, lost boat's crew at Api, New Hebrides. Mate and Government agent killed.

September, 1880. The *Ripple* attacked at Bougainville (Solomon Islands). Captain Ferguson and five natives killed.

September, 1880. Brigantine *Borealis*, labour vessel, attacked at Ugi (Solomon Islands). Crew, five white men, and one Fijian killed.

September, 1880. Cutter *Idalio* attacked at Espiritu Santo. Captain and crew killed.

October, 1880. The *Hongkong*. Crew murdered at Leveade Island to south of New Britain.

October, 1880. Schooner *Zephyr*. Captain and crew massacred in Solomon Islands.

October, 1880. The *Annie Brooks* attacked off Brooker Island. Captain and crew of eight whites, and three Chinamen massacred.

October, 1880. A boat's crew of H.M.S. *Sandfly* attacked at Mandoliana, near Gaeta, Floridas, Solomon Islands. Lieutenant-Commander Bower, R.N., and four seamen killed.

Events such as these, and especially the murder of exceptionally gifted men such as Bishop Pattison and Commodore Goodenough, have helped to give vigour to the movement, already prompted by purely humanitarian considerations, for legislative control over the labour traffic. Queensland promulgated a Labour Act in 1868; and Great Britain followed with the Kidnapping Act of 1872, a similar Act in 1875, and at length, in 1877, for the purpose of better carrying out the provisions of those Acts and to provide a civil court for the settlement of disputes between British subjects living in the Western Pacific Islands, a High Commissioner was appointed to have jurisdiction "over all islands in the Western Pacific not being within the limits of the colonies of Fiji, Queensland, or New South Wales, and not being within the jurisdiction of any civilised power." This area was most precisely explained to include "that part of New Guinea eastward of the 143rd meridian of longitude, New Britain, New Ireland, the Louisiade Archipelago, the Solomon Islands, the New Hebrides, the Tongan or Friendly Islands, the Samoan or Navigators' Islands, and the various small groups of Melanesia." The first High Commissioner was the Hon. Sir A. H. Gordon, lately governor of Fiji and subsequently governor of Ceylon.

But neither British legislation nor the visits of British or other cruisers for purposes of punishment or control have as yet proved altogether effective, and we must look to the completion of the process of annexation and "protectoration" which has recently been going rapidly forward for the true means of rendering the

Pacific a region of safety both to the natives and to those who frequent its waters.

The French, whose famous navigators, La Pérouse, Entrecasteaux, Duperrey, and D'Umont d'Urville, had done so much for the scientific exploration of the Pacific, were the first of the great nations of Europe to acquire territorial possession of any of the islands. The circumstances concerning their seizure of Tahiti created considerable excitement at the time. This island had been the first field of the missionary enterprise of the London Missionary Society, the king, Otu, having ceded to Captain Wilson of the "Duff," the district of Matavai. The success of the missionaries was in the long run of the most striking kind, and when Mr. Ellis, one of the most learned representatives of Christianity in the Southern Seas, arrived in the island in 1817, it was to find the whole island passing under the rule of the Christian King, Pomare. Several attempts were made in 1836 and 1837 to establish Roman Catholic priests in Tahiti, but Queen Pomare, at that period the reigning sovereign, refused to allow them to remain. As the Roman Catholic mission priests were French subjects, the French Government considered the Queen's conduct an insult to the French flag, and in 1838 she was obliged by the captain of the French frigate "Venus" to pay an indemnity of 2,000*l.*; and Mr. Moerenhout, the United States Consul, who had been discharged by President Buren for the part he had taken in the introduction of the priests, was reinstated Consul for France. The Queen recognised the French suzerainty on September 9th, 1842; and in spite of considerable sputterings of diplomacy the island passed permanently under French control. There is still a King Pomare V; though he has little say in the management of the island.

In June, 1842, almost at the same time as the annexation of Tahiti, France took possession of the Marquesas; but at first the natives offered considerable resistance to the invaders. The first French missionaries, who had been preceded by their Protestant brethren of the London Missionary Society, had settled in the island of Tavata in 1838. For several years, 1850–54, an establishment for political convicts was maintained at Nukuhiva, but in 1861, after much expending of money and effort, the settlement was practically abandoned, and a mere resident left to maintain "the honour of the flag." French missionaries were landed at Balade in New Caledonia in 1843,

and, in the words of a French writer, "*il fallut à plusieurs reprises intervenir en faveur de nos compatriotes.*" At length, irritated by an attack made by the natives on one of the boats of the "Alcmène," the French Government determined to annex the island. This was accordingly effected by Febvrier-Despointes on September 25th, 1853. The seat of government was transferred in 1855 from Balade to Nouméa, an excellent position which had already caught the attention of a rich English trader, Paddon by name. The French occupation has been far from peaceful; year after year has been disturbed by local hostilities more or less formidable, and as late as 1878 there was a general revolt and suppression. It was in 1864 that the first detachment of convicts was landed in New Caledonia, and the 53rd detachment arrived in 1884. The total number of criminals thus disposed of was 15,216, the vast majority, or 14,792, being Europeans, 260 Arabs, 119 Asiatics, and 45 "Oceanians." Of these, 4,525 were discharged either on the expiry or reprieve of their sentence. Recently the whole island has been treated by the French Government more and more exclusively from the point of view of a national penitentiary; and the trade, commerce, and agriculture of the ordinary colonists is being left more and more to take care of itself. "The commission lately appointed," says the British Consul of Nouméa, "to examine and report on the amount of land available on which to plant 'libérés' and 'recidivists' having discovered that it is now but small in quantity and of little value, is striving by every means in its power to repossess itself of the lands formerly sold or granted to the free settlers." By the decree of 16th August, 1885 (a black day for the colonists), the Home Government reserved for the use of the penitentiary service all the unalienated land on the island. The French authority was recognised by the Gambier Islands in 1844; two of the Tubuai Islands followed suit in 1847; and in 1859 the Tuamotu Archipelago was quietly annexed. In recent years attempts have been made from time to time by the French to lay hands on the New Hebrides and Samoa. Over and again the report has reached Europe, but over and again the announcement has proved premature, that the French flag had been hoisted. But of this later on.

England—which, at a certain stage in the history of events, might so easily, without arousing any valid opposition, have annexed the numerous archipelagoes in which English influence

was philanthropically or commercially paramount—has been peculiarly remiss in securing her interests in the Pacific by direct annexation. We have just seen how she allowed herself to be outwitted by France in the matter of Tahiti, and even in recent times, when the activity of the Home Government is stimulated by the claims and clamours of the Australasian colonies, she has been almost reluctant to take under her protection any portion of the Pacific. In 1859, King Thakombau, of the Fiji or Viti Islands, offered the sovereignty of his kingdom to Queen Victoria; but in 1862, after careful inquiry, his proposal was declined. Again the King, sore put to it by the conduct of the white settlers within his dominions, appealed to England: "if things remained as they were, Fiji would be like a piece of drift wood on the sea to be picked up by the first passer-by." Various negotiations between the governments ensued; and at length in 1874 Thakombau's deed of cession was accepted, and the Fiji Islands were erected into a British colony. On December 17th, 1880, the Island of Rotumah, between 300 and 400 miles north of Fiji, and all islets and rocks between the 12° and 15° of south latitude, and 175° and 180° of east longitude, were annexed to the colony at the request of the chiefs of Rotumah, who were received in state at Fiji by Sir Arthur Gordon in 1879. No further annexation took place in British interests till the present year (1886); but a great deal of attention has from time to time been given to the relations subsisting between British subjects and the natives of the Pacific, and successive attempts have been made to provide the latter with effective legal protection against the more brutal forms of British exploitation.

Germany had taken little part in the earlier exploration of the Pacific area, but in the present century her traders and merchants had gradually, without government assistance or support, established themselves in various parts of the ocean, and especially in Tonga and Samoa had become one of the most important factors in the progress of civilisation. The great firm of Godeffroy und Sohn in Hamburg, which had commenced its Pacific business about 1860, had up till 1880 almost a monopoly of the copra trade; and it has left a magnificent monument of its success in the contributions to geographical and ethnographical science registered in its well-known journal and in the museum of Oceanic *realia* with which it enriched the city in which its headquarters were established. But latterly other firms began to share the spoil, and in 1880, on the sudden fall of copra prices,

the Godeffroys had to stop payment. Their place as the leading German firm in the South Seas had been taken by the *Deutsche Handels- und Plantagengesellschaft der Süd-See Inseln.* The Imperial Government began to support the merchant interest with its men-of-war and with consulates; and in 1880 formal treaties of commerce were signed with Tonga and Samoa. At length, in 1885, the world was startled by one of those bold strokes in which the German Chancellor delights: a charter or *schutzbrief* was issued to a German New Guinea company, represented by Adolph von Hausemann, and German sovereignty was declared to exist: (1) over that portion of New Guinea which does not lie under Dutch or English sovereignty; and (2) over the islands off this part of New Guinea, and the islands of the archipelago previously known as New Britain, and now at the company's request renamed Bismarck Archipelago, and all other islands north-east of New Guinea between the equator and 8° of south latitude and between 141° and 154° of east longitude.

The German portion of New Guinea, styled Kaiser Wilhelm's Land, was defined as stretching along the north-east coast of the island from 141° east longitude, to the point in the neighbourhood of Mitre Rock, where 80° south latitude cuts the coast, and as bounded south and west by a line following the 8th parallel to the intersection with 147° east longitude; thence continuing in a north-west direction to the intersection of the 5th parallel with the 141st meridian; and afterwards following that meridian to the north coast. By this simple declaration an area of 52,088 square geographical miles was annexed to the German Empire. The Chancellor had the further satisfaction that he had succeeded in outwitting the British Government, which in spite of the urgent representations of the colonists, refused to sanction the action of Queensland, which had sent Mr. Chester, magistrate of Thursday Island, on April 4th, 1883, to annex the whole of New Guinea not recognised as Dutch. It was natural and appropriate enough that the Germans should honour their beloved Emperor by giving his name to the new territory in New Guinea, which had been hitherto left without any distinctive designation; but it is difficult for an Englishman to refrain from smiling, with it may be a somewhat bitter smile, when he sees New Britain, a name sanctioned by the usage of all geographers for nearly 200 years, deleted that Bismarck might be writ large. If the desire of the Germans was to emphasise the

triumph which the Chancellor obtained over British diplomatists, their purpose would have better served by leaving the name as they found it: for what could have been more piquant than on the map to see an island styled New Britain coloured as a German possession, as not far off an island styled New Caledonia is coloured as a French possession. But this consequential blazoning of German sovereignty has since been continued: in November, 1885, his Majesty was pleased to authorise that the mountain in the Gazelle peninsula of New Britain, known as Beautemps Beaupré (after the French explorer) should be named Varzin, that New Ireland should become New Mecklenburg, the Duke of York group New Lauenburg, &c.

The fears of the British Government being at length aroused by the German aggressions, led it to adopt measures to limit the area over which they might extend. In April, 1886, a declaration was signed by the two powers. It defined the Western Pacific as that part of the Pacific Ocean lying between the 15th parallel of north latitude to the 30th parallel of south latitude, and between the 165th meridian of longitude west and the 130th meridian of longitude east of Greenwich. It then proceeded to lay down a conventional line of demarcation between the British and German spheres of influence within that area. The line ran from a point on the north-east coast of New Guinea, in the 8th parallel of south latitude (near Mitre Rock) due east to the intersection of 8° south latitude with 154° east longitude. It then held north-east to the intersection (to the south of Bougainville Island) of 7° 15′ south latitude with 155° 25′ east longitude. Next it was carried south-east to the south of Choisant and Isabel Islands, and from the intersection of 8° 50′ south with 159° 50′ east, between Isabel and Guadalcanar it was directed directly north-east, Keats Bank in the south-east corner of the Marshall Island, and finally run due north to 15° north latitude.

A special proviso was inserted that the declaration did not refer to the Navigators' Islands (Samoa) which are affected by treaties with Great Britain, Germany and the United States, nor to the Friendly Islands (Tonga); nor to the island of Niué (Savage Island)—which groups of islands are to form a neutral region, nor to any islands or places in the Western Pacific now under the sovereignty or protection of any other civilized power. This last was a most important point. The Caroline and Marshall Islands were left in the German annexation area. The Berlin Government, emboldened by the

success of the New Guinea *coup de main*, at once turned its attention to the Caroline and Pelew Islands. The Spaniards who had been accustomed to include in their colonial possessions a province of the Marianas, Carolinas, and Palaos, but had with characteristic *faineance* neglected to go in and possess in any effective way, were rudely awakened out of their secular somnolency by the arrival of a German gun-boat which proceeded to annex, or at least occupy, the island of Yap. Spanish pride was keenly touched; mass meetings were held in Madrid, and on September 4th the populace went so far as to pull down and burn the German flag-staff and escutcheon at the German legation.

The Papal arbitration, to which the matter was ultimately submitted, recognised that the Spaniards had done more for the civilization of the Caroline and Pelew Islands than any other nation; but pointed out on the other hand that while the Spaniards had a traditional belief in their sovereignty over those islands, both Germany and England had in 1875 formally declared that they did not recognise the Spanish claim. By the protocol signed at Rome on 22nd October, 1885, it was ultimately agreed that the German Government, admitting the priority of the Spanish occupation in the Carolines and Pelews, should recognise the Spanish sovereignty over the islands situated between the equator and 11° north latitude and between 133° and 164° east longitude; but that Spain should grant German subjects full freedom of trade, navigation, and fishing, with the right of forming plantations, and permit the German Government to establish a naval station or coaling depôt on one of the Carolines or Pelews.

A few days before the signing of this protocol the German flag was hoisted at Yaluit, the "capital" of the Marshall Islands, the group to the east of the Carolines. As early as 1878 the local chieftains had granted the Germans the right of having a coaling station at this lagoon-harbour. The preponderance of German commercial influence in the group may be inferred from the fact that out of 67 vessels entering Yaluit in 1883, 39 were German and only 3 English and 7 American. The Christianising of the natives, however, has been effected, or at least attempted, by the Boston Mission Society, whose vessel, *The Morning Star*, visits all the island, once or twice per annum.

In 1886 Germany undertook to do nothing which may hinder the eventual taking into possession by France of the isles and

islets forming the groups called Isles sous le Vent en Océanie, and connected with the Archipelago of Tahiti or the Society Islands. It took the same engagement respecting the New Hebrides Archipelago, situated near New Caledonia.

This express mention of the New Hebrides at once awoke the suspicion of the English Australasians, who are afraid of any further extension of French territory, lest it should lead to the establishment of another convict station, from which ruffian runaways might invade their country. The French Government by formal treaty with England has disowned any intention to encroach on this Archipelago, but at the very moment at which we are writing there comes another rumour of high-handed action on the part of French officials.

While in this way Europeans have gradually been acquiring a firmer foothold in the Pacific, the Polynesian and allied races have been decreasing so steadily and rapidly as to threaten an ultimate extinction.

According to Behm and Wagner, Melanesia has 617,400 inhabitants, Polynesia 121,500, the Sandwich Islands 57,985 (1878), and Micronesia 91,600. This makes a total population for the Oceanic area of only 888,500 in round numbers, and this is at the rate of only five individuals to each square kilometre of space, a low ratio reached in Europe only by such sparsely peopled regions as Finland—Great Britain and Ireland having 112 individuals in a similar area. There is every reason to believe that before their contact with Europeans the nations of Polynesia were immensely more numerous. The Sandwich Islands afford a highly striking instance of the rapid rate at which the decrease has been going on. Cook estimated the population of this group as 400,000 in 1778. Some authorities, it is true, have considered this an exaggeration to be explained by the supposed fact that the people rushed from point to point of the island to get a fresh view of the strangers, and thus gave Cook the impression of a much denser population than really existed; but in the opinion of so competent a judge as Dr. Otto Finsch this estimate of the famous discoverer's was probably rather under than over the mark, and in support of this view he appeals to the curious traces of stone walls and means of artificial irrigation to be found in portions of the islands whence all human occupancy has disappeared. And even if these figures be left out of account, more recent statistics point to the same great tendency. In 1830 the population was 130,300, in 1836

108,500; by 1853 it had sunk to 73,138, and by 1878 to 57,985. Of this latter number, morever, only 44,088 were true natives, 3,420 being mestizos, 5,916 Chinese, and 10,477 other foreigners.

If we turn to another group which has come under a somewhat different set of influences—the Marquesas—we find evidence of the same decay. In the close of the 18th century the population of that Archipelago was put down at 80,000 souls; while in 1855 the official French census showed only 11,900, and even this has been further reduced to 6,045 in 1872, and 5,775 in 1882. It would be easy to multiply cases: the fact is patent. But the causes of this decline are not so easy to discover precisely. It is usual to ascribe great effect to the inroads of European diseases, and more especially of those diseases which are the result of European vices; and these undoubtedly have played their part among the depopulating agencies. We know what terrible ravages measles, for example, made among the Fiji Islanders in 1875. To drunkenness, also a good share of the blame attaches, but this vice, terrible though it be in some parts, has not become universal throughout the Pacific, and in any case could not account for a tithe of the decrease in such instances as the Marquesas. Perhaps more fatal than any other class of influences are those due to the sudden adopting of European clothing, which, unfitted as it is for the general conditions of tropical life, is peculiarly unsuited to those who have previously worn nothing but the simplest of cinctures and kept the whole surface of the body in free intercourse with sunlight and air. But even when all has been said, and European diseases, European clothing, European rum, and European piracy have been arraigned and condemned, we still feel that subtler causes are at work. The Bantu races of South Africa have come under those malign intrusions of the European, and instead of dying out before the white man they are, as has recently been shown in official reports from Cape Colony, actually increasing at a rate hitherto unprecedented in the registers of vital statistics. The Polynesian race would seem to fail somehow in the struggle of existence with the white. And it is not the Polynesian man alone that retreats; the Polynesian birds and the Polynesian plants, in many cases, seems to share the same destiny. We know the pathetic lament of the New Zealand aboriginal; as the white man's rat has destroyed the Maori rat, and the white man's fly the Maori fly, so the white man is destined to displace the Maori himself. Something of the

same process, in a sporadic way, seems to be taking place in other parts of the Pacific area. Dr. Otto Finsch, after a visit to Honolulu in 1879, reported that the native birds of Hawaii, as well as the native plants, are being ousted by introduced species. The house sparrow from Europe, and the Maina (*Acridothres tristis?*), and the turtle dove from China (*Turtur chinensis*), are almost the only birds to be seen in and about the town; and in order to obtain specimens of indigenous species, he had to go far inland. (See Proc. R. G. S., January, 1880.)

Thus, looking back over what we have written, it will be found that the Pacific Islands may be roughly described in a sentence as a multitude of mainly volcanic archipelagoes, modified by coralline structures, in a genial tropical climate, producing cocoa-nuts, cotton, coffee, pearls, and other mercantile commodities, occupied by races originally of Asiatic origin, and in modern times brought under multiform influences, some wholesome and others deadly, of the European nations, who have laid hands, one on this and another on that portion of the region for their own political and commercial purposes. They will gradually lose their native inhabitants, and in all probability be occupied by a population recruited from all the European nationalities and mingled with a large proportion of Chinese. To the wealthier classes of Europe they will doubtless become one of the great world's playgrounds, a yachting trip among the beauties of the Pacific being as familiar as we now regard a yachting trip in the Mediterranean.

H. A. Webster.

THE COLONIAL AND INDIAN EXHIBITION.

THE gigantic tracts, which form an integral part of the dominions of the Queen and Empress of these realms, are in extent and resources so much beyond the scanty conception ordinarily entertained of them in our little sea-girt home, their growth is so vigorous and so rapid, their resources so vast and still so undeveloped, that to bring home to the mind of the community some more adequate conception of these great verities is assuredly a potent and far-reaching public good, for it may be taken as certain that their influence on our commerce and policy will assert itself ere long in a manner at present only foreshadowed. The Colonial realm of England indeed is at once the wonder and the admiration of our Continental neighbours, some of whom take a much keener and more active interest in our growing possessions than has hitherto been displayed at home.

But if the English public as a body have been strangely indifferent to the growth of Colonial enterprise, it is far otherwise with many men of light and leading, and foremost among those who give a due appreciation to these great matters is the Heir Apparent to the throne, who initiated, in 1883, the colossal Colonial Exhibition, which drew within its doors nearly six millions of English subjects before its close on the 10th of November last. His Royal Highness in fact from the outset took the lead in the executive duties of the Exhibition with characteristic energy and public spirit, and with all the command of resources which his exalted position placed at his disposal. Her Majesty the Queen was pleased forthwith to become a patron of the Exhibition, and throughout manifested the warmest interest in its initiation and development, and in the welfare of those of her Indian and Colonial subjects who visited it.

The hearty concurrence of the various Colonial Governments having been obtained, and that of the Secretary of State for India being readily secured, it was decided to include in the scheme that great Dependency. A Royal Commission was gazetted in due course, whose work was defined as the organization of an Exhibition which should secure "the full and suitable representation of the agriculture, commerce, arts, and industries of our said dominions beyond the seas," and Her Majesty in the recital expressed her wish that her Colonial and Indian subjects

should take part in the Exhibition. Her Majesty was pleased to open the Exhibition in person at a State Ceremonial befitting the dignity of the occasion, and repeated visits gave evidence of the exceptional interest taken by the Sovereign in the great enterprize.

No sooner was the Commission issued than active steps were at once taken, both in India, the various Colonies, and at home, to carry out the objects as defined by Her Majesty, Sir Philip Cunliffe Owen affording to the Royal Commission, as its Secretary, the advantage of his unequalled experience and powers of organization; and many distinguished members of the Royal Commission willingly undertaking onerous duties on the respective Executive Committees.

Thus the Exhibition had from its inception very distinct advantages—highly influential patronage, government recognition, the cordial co-operation of the Indian and Colonial Governments, and a sufficiency of time to complete all the arrangements. Nor were the opportunities afforded by such a happy combination of circumstances neglected, for the labours of the Executive resulted in the display of a collection of the products of this world-wide realm so rich, so varied, so complete, and so suggestive of an unexampled progress, that the whole country was moved to pride and admiration.

To familiarise the commercial world with the vast Colonial resources which only await development, to lay before the agricultural section of the community unexpected illustrations concerning the rich soils and pasture lands of our great Colonies, to familiarise us not only with the richer products and varied manufactures of England beyond the seas, but with the art treasures of our Eastern fellow subjects, was surely a great enterprise worthy of the leadership of the Heir Apparent to the throne. Great in its conception and its promise, the Colonial and Indian Exhibition of 1886 was assuredly even greater in its fulfilment. Possibly time will show that in the awakening of the public mind to a due grasp of the magnitude of matters so vital to the commonwealth, the Exhibition has fulfilled an even nobler function.

Passing now to a brief review of the contents of the Exhibition, some of the principal objects in the various sections may be noticed; to describe them in anything like detail would far exceed the limits of this paper.

The Indian Exhibits naturally claim attention in the first

instance, and it may be broadly stated that they well illustrated the rich productions of our Eastern Empire from the artistic as well as from the commercial standpoint.

The exhibits were placed officially in three divisions, and it will be convenient to notice them in the same order. In the *Art Ware Courts*, the arrangement was geographical, as best suited to illustrate the art manufactures of India. This new departure has the special advantage of showing in a fairly precise way the change of style in passing from one part of India to another, such for instance as the influence of Persian art on the manufactures of the Panjab and contiguous territory, which can thereby be clearly traced when comparing the same manufactures with those of the more southern regions; or again, the influence of the Moghal Emperors and other luxurious native sovereigns, on a particular industry, which can be clearly seen in the style of manufacture adopted at the present time compared with that in vogue when these kingdoms were in their full magnificence. It is only possible here to give a brief account of the various courts constituting India in the Exhibition.

Rajputana.—Of these States several contributed, including the English State of Ajmere-Mhairwara, the entrance to each court being afforded by a carved screen, whose workmanship formed, as in the other Indian courts, a striking feature of the Exhibition. The Jeypore screen was remarkable for the variety of its patterns, the aim being to show the effect of grouping various styles of Indian ornament. The Karauli screen was a fine specimen of stone carving, consisting of a red sandstone architrave and false arch supported by a perforated sandstone screen. It consisted of a variety of patterns, the screen being "a representation of local architecture in details." The fine red sandstone of which it is formed came from the celebrated Karauli quarries. The Jodhpur screen was of teak-wood and of the modified Delhi type, while that of Ulwar was of white marble, perforated and carved in relief, framed in black marble and teak, the sides being formed of carved red sandstone, all of pure Hindu style and workmanship, the marble coming from the famous Makrana quarries. The Kotah screen was of shisham wood, inlaid with ivory, of Moghal design. The Bikanir screen was also very ornamental, showing to advantage the skill of the native workmen, who excel in wood decorating, and whose work fetches high prices. Perhaps none of the Indian Courts better exemplified the purely Indian style of ornament

than these States of Rajputana, and in none was more attention given to art productions. Jeypore possesses a school of art which has done much to improve the indigenous art of the town by counteracting the habit of merely repeating old designs which in each successive repetition have lost much of the beauty and finish of the original work. Some excellent metal work was shown from this school; and the gold and silver plate from the different States were very characteristic collections, and included charms, bracelets, rings, perfume holders, together with some good enamels, and personal and other ornaments, the garnet jewellery being especially conspicuous. The lacquer ware cups and inlaid work from Etawah were also well worthy of notice, as were the curious *hindoras* and other objects used for the Hindu religious festivals; ivory carvings, arms and armour. These last were well worth close attention, and together with the glazed Rajputana pottery formed another striking feature of the court. Textiles, for obvious reasons, are sure to create an interest in this country, and those of Rajputana being very well represented, claimed a full share of notice. The other objects worth attention were the gold and silver embroidery from Ulwar, Bikanir, and the Shergarh, embroidered saddle-cloths, Bikanir serges, and shawls and petticoats made by Jat women in Nagore, which are now largely bought in Europe.

Central Indian Court.—The screen of this court was arranged in such a manner as to combine the leading Muhammadan and Hindu styles, otherwise the exhibits were not specially distinctive; but there was some good soapstone carving as well as the great Gwalior Gateway. The jewellery was noteworthy, some of the bracelets being of superior design and manufacture, as were the *repoussé* salvers from Rampura. Some good jewellery in the inferior metals was shown, chiefly of zinc, from Rewah. Of the textiles the most important were the celebrated Chanderi muslins, which are the finest of Central India, the Maheswar muslins from Indore, and the yellow cloths from Ujjain and Mandawar in the Gwalior State. The embroideries of the district were well represented, but not of any great importance.

Bombay Court.—This court contained, as implied by its name, the art work from the Bombay Presidency. In addition there were specimens from Baroda and numerous native States. The screen was a witness of the attention now shown to art culture in the great Presidency, being formed from designs from the Bombay School of Art, and fashioned to illustrate as fully as

possible the characteristic wood carving of the Presidency. By far the most interesting portion was the Bhaunagar section, which was considered by many competent judges to be the best of the whole series of screens. The details were selected from the ancient mosques of Ahmedabad, and were extremely interesting to all students of Indian art. The Gaikwar of Baroda's handsome carved "pigeon house" was a conspicuous feature of this court. Many other examples of wood carving were also exhibited both in furniture and decoration. The well-known Bombay inlaid work was plentiful. Pottery was not a strong feature, Bombay having declined in this respect, but what there was of it was very beautiful, the ware made by the celebrated "Kashigars" being the principal sorts shown. Metal work was in abundance, principally from Nasik and Poona, and we may specially notice a fine copper vase prepared at the Bombay School of Art. Arms both ancient and modern were well represented, the large trophy contributed by the Rao of Kachh being much and deservedly admired. Specimens of lacquered ware and of horn work were numerous and important. Ivory carving is not much practised in this Presidency, but the principal centres contributed some characteristic examples. The gold and silver ware was excellent (that from Kachh being the best in the whole Indian section), Poona, Baroda, Bharnagar, Ahmednagar, and Bombay City sending large and valuable collections, the native Princes contributing their palace jewellery, &c.

Bengal Court.—The screens of this court represented both the Hindu and Muhammadan styles of architectural ornament, the former being modelled from the Temple of Krishna at Kantanagar, while the latter was designed from the architecture of Gaur, the former capital of Bengal. The stucco mouldings exhibited in this court were remarkable as being the remain of a once flourishing industry now nearly extinct. The jewellery exhibits were very fine, especially the filigrain work from Cuttack, quite distinct from the ordinary native jewellery of the surrounding country. The Dacca gold and silver filigrain work, personal ornaments in the precious metals, and cheap jewellery for the poorer classes, mountebanks, &c., some copper *repoussé* work from the Calcutta School of Art were all attractive, as well as the metal household utensils of the Hindus and Muhammadans. Specimens of the inlaid *bidri* ware from Punniah and Murshedabad of Monghyr work, and ivory carvings from Mur-

shedabad, were also of great beauty. Some specimens of wood carving were interesting as illustrative of an almost extinct art, kept alive, however, in the Calcutta School of Art, from which some fine examples came. The personal ornaments exhibited from this Presidency were not important, nor were the specimens of pottery, except perhaps the black and red Sarun pottery and the unglazed pottery from the Calcutta School of Art. Of the textiles from Bengal, the far-famed Dacca muslin was the most celebrated, somewhat shorn, however, of its ancient, exquisite delicacy of manufacture,—

> Whose texture e'en the search of gods deceives,
> Fine as the filmy thread Arachne weaves;

like the golden net of Hephaistos; but several good specimens were sent for exhibition and sale. The Murshedabad and Bankura silks, and the Tasar silks, with which Mr. Wardle's admirable work on the "Wild Silks of India," published by the Science and Art Department, has done so much to render the English-speaking world familiar, were well represented. The rivalry of Manchester has quite revolutionised both calico manufacture and printing, but some typical specimens of both were sent to show that the industry is far from extinct, and a good collection of carpets illustrated the only woollen manufacture of Bengal.

Nipal Court.—From the Bengal Court we pass to that assigned to the exhibits from Nipal, almost a *terra incognita* till quite a recent period, and even now stringently guarded from prying eyes by the native rulers. The English Resident, however, had the necessary *savoir faire*, and induced the Government to get together a collection illustrative of the Arts of the Newar race, together with a characteristic screen. The collection embraced some fine specimens of wood carving, some curious musical instruments, jewellery, military head-gear, brass and copper-ware, and textiles.

North-West Provinces and Oudh Court.—This district, within which were included such art centres as Allahabad and Lucknow, was sure to be well represented in the art ware courts. The screens were of three kinds, viz., marble inlaid with precious stones, stone carving, and woodwork, all faithfully designed and copied from the master works of art of the province. The stone carving of Agra deserved particular attention, and the carved sandstone ware from Mirzapur also. The jewellery of Lucknow is justly famous, and although it has

declined in quantity since the overthrow of the luxurious Court of Oudh, it still keeps up its high character for artistic finish. The ornaments of silver were especially fine, and the Lucknow gold and silver and *bidri* ware were extensively exhibited. It is satisfactory to learn that the trade in *bidri* ware is steadily increasing. The curious Moradabad ware was also displayed in a large and unique collection (the largest ever seen in this country), and was very carefully scanned by collectors. Benares brass ware and other metal exhibits, too numerous to mention, illustrated the craft of this richly historic region. Some good enamelled ware from the old palace, inlaid work from Mainpuri, lacquer work of the various towns, household utensils, and objects of general use, made a very fine and useful exhibit, supplemented by some of the finest cotton goods which the weavers of the North-West Provinces know so well how to produce, muslins from Sikanderabad, pattern muslins of grotesque design—those from Benares rivalling it is said the Dacca muslin in delicacy.

The Panjab Court.—The screen of this important court was composed of two long arcades closed by four shorter ones, half being in shishan and half in deodar wood. The long arcading was in the *pinjra* or cage-work, which is very like the lattice-work of Arabian architecture, and very typical of Panjab art. The end arcades were in the Akbari style. Besides the screen there was a series of carved work from Berar, Chinniot, and from Hissar, as well as Sialkot, Batala, and other places, the carving being nearly all after the manner of the Mussulmans, Hindu sculpture being now very rare. The jewellery was not remarkable, but some fairly good examples were sent, far inferior, however, to those of Jeypore in the Rajputana Court. The damascened work known as *koft*, formerly made in the Panjab, is now rare, nevertheless, numerous arms, vessels, and two caskets, illustrative of the work, were specially made for the Exhibition. Some forty specimens of metal work were shown, chiefly articles for household use; some, however, were those used in connection with Hindu worship, and an Amritsar door, in beaten copper-work, in the style of the golden temple of the Darbar Sahib. Arms and armour were an attractive display, the more prominent specimens being the Kohat matchlocks, the sword belt from Dera Ghazi Khan, the Sialkot mail suits, and the Gujeranwala and Nizamabad cutlery. Among the household furniture were some fine carved wood chairs and inlaid

work, as well as the more modest articles with which the Indian villagers supply their scanty wants. Of the pottery exhibits attention was at once drawn to the mosaic and glazed pottery and *faïence* tiles from the mosques, and some specimens of a rather coarse kind of porcelain. Cotton goods and cotton printing here as in the other courts were of first-rate order, and in this section we find an extensive collection of woollen fabrics, both of the coarser kinds used by the poorer classes, and the splendid outcome of the looms which work up the wool of the hair goat from Thibet. Silk weaving is still carried on, but not so much so as formerly.

Kashmir Court.—The screen of this court was of deodar wood, and the design was copied from the verandah of an old wooden mosque near Chakoti, and beside the screen were some specimens of *chil* wood carving used for ceilings. A fine collection of Kashmir silver gilt plate was sent, and large quantities of copper work found ready purchasers at good prices. The Sambar chintzes, which decorated the vestibule, were acknowledged to be exceptionally fine specimens of Kashmir textiles. These also found numerous purchasers, and the demand for them is extensive and increasing. The Kashmir shawl trade is now, we regret to learn, well nigh moribund, and promises to be extinct within the next two decades, unless prompt measures be taken for its resuscitation.

Central Provinces Court.—The screens made by native carpenters at Nagpur were excellent specimens of Hindu art. The art of carving in wood, and of a less degree in stone, is, we are informed, perhaps the only one in which these provinces can hold their own against other provinces in India.

Assam Court.—Assam, always an interesting region, was best represented in the Tea Court, which will be noticed later on. The screen of the court was of bamboo and cane, the primitive construction and ornament being in marked contrast to those from more civilised States. The jewellery was well worth attention, the fine gold filigree made at Barpeta, the Khasi Hills jewellery, Manipur jewellery, and Jorhat earrings being well represented; other objects were brass and copper utensils, some good specimens of the moribund ivory carving industry at Jorhat, textiles, and basket work of various kinds.

Burma Court.—The exhibits here were confined to the country formerly known officially as "British" Burma, that is, the portion in the occupation of England previous to the recent

annexation. The screens of carved teak at once arrested the eye of the visitor, the difference in style from those already seen being very striking, and at once suggested the existence of a style of art different to that of India proper. The principal carving was in wood, and in addition to architectural details there were numerous models and objects connected with Buddhist worship.

Madras Court.—The screen was of Burma teak from a design made at the Madras School of Art, in the Dravidian style of the Vijaynagar period, with fluted and ribbed columns, surmounted with lotus capitals which supported a long beam filled with various Hindu designs. The principal exhibits from Madras were specimens of old native jewellery, brass and copper utensils, wood carvings, cotton and silk fabrics, hand-painted fabrics and embroideries. A fact which should not be lost sight of by connoisseurs of old Indian jewellery is that in Madras, at least, it is being rapidly melted down and recast into more modern and inferior patterns. The aboriginal jewellery of the tribes from the Nilgiri Hills was of special interest, and the collections lent by the Maharajahs of Cochin and Travancore were all excellent specimens. Among other objects which specially deserve notice were the brass and copper work of Tanjore, the collection of arms lent by the Maharajah of Vizianagram, the samples of the well-known Travancore ivory carving, the pottery from the Madras School of Art, fine *arni* muslin, silks well adapted for European wear, and some very handsome embroideries.

Hyderabad Court.—The court which contained the exhibits from the Nizam's dominions was entered by a screen, consisting of a series of arches, well representing the industries of this State. Some were of brass, others of *bidri* ware, and the rest of lacquer. The jewellery and silver ware were of Aurungabad make, the metal *bidri* ware being shown from Bidar itself. This ware is in great demand, inasmuch as it forms an essential part of all dowries, and commands high prices. A fine collection of arms and armour will be remembered as a striking feature of this court, the sword blades especially. The lacquer ware was also of great beauty.

Mysore and Coorg Court.—The screen of the court devoted to these Hill States was made of different kinds of native timber, wrought as in the other courts, so as to best represent the art of the district. The principal objects shown were a collection of

Hindu deities, lacquer ware, ebony furniture, some excellent specimens of the skilful gold and silver work for which Mysore is famous, the hardly less famous brass and copper utensils from Tumkur, Nagamangala, and Magadi, and some representative textiles in cotton and silk (the latter fabric being of especially fine character), together with Bangalore woollen rugs.

The Imperial Court.—This consisted of a representation in trophies or in glass cases of the economic resources and productive powers of India, as well as a representation of its commerce. The forest trophy which formed the entrance to this court was an exceedingly tastefully arranged and instructive collection of Indian timbers. The bamboo trophy was a very prominent object in the centre of this court. The number of articles into which the bamboo is capable of being made is almost infinite. The fruits and vegetables next claim attention, some being fresh, but the majority preserved or pickled, The best fruits have been introduced from other countries. India, contrary to popular notions, not being rich in them. Numerous varieties of jams, pickles, and chutneys prepared from the mango were shown, as well as other characteristic fruits, such as the guava, litchi, pine apple, and plantain. The nuts included the almond, hazel-nut, walnut, pistachio, Singara, &c., the first being largely used by the Hindus and Jains as religious offerings, and the last named forming a staple article of food to large numbers of persons in Kashmir. The cocoa-nut and its products were well represented, as were also the numerous Indian vegetables and pulses. The very important collection of grains comes next in order, prominent being the invaluable rice, under which crop it is said nearly sixty million acres are laid down. This grain forms the staff of life to some eighty or ninety millions of our oriental fellow subjects. Next to rice the millets are the most essential grain of India, and form a staple food for the poorer classes (who cannot always procure rice) from Madras to Rajputana. The wheat exhibits were of special interest, owing to the rapid growth of the exports. The whole series of grains were tastefully represented in a trophy.

Sugar was well represented. Under the group "narcotics and stimulants" the beers from the Hill breweries were conspicuous, and the production is increasing to such an extent as to cause a serious falling off in the imports from this country. Other important items in this splendid collection were the samples of the large number of plants used as drugs, the

specimens of cotton, jute, and rhea, the paper and paper materials, among which should be specially mentioned the Nipal papers, the oils and oil-seed, such as flax-seed, rape, gingelly, poppy, earth-nuts, and the castor-oil seed.

Ethnological Sub-Courts.—These were filled with a magnificent series of life-like models of the various races which inhabit India. Full accounts of these have been furnished in the special catalogue issued by the Royal Commission.

Tea, Coffee, and Tobacco Court.—An inspection of this court at once gives one an idea of the rapid strides made in India during the last fifty years in the important industry of tea planting.

Specimens of the principal kinds of tea grown in India were shown in the court, as well as coffee, cocoa, and tobacco. The coffee plantations are not now in a thriving condition, but this falling off is in some measure compensated for by the cocoa-planting industry, which is fairly prosperous, and the same remark applies to tobacco.

The Kuch Behar Trophy.—This was a grand illustration of Indian jungle life, skilfully designed and prepared by Rowland Ward, and together with the adjacent hunting trophy, got together with the friendly aid of the Maharajah of Kuch Behar, afforded the greatest interest to the general public.

Administrative Court.—This court was filled with publications, models, &c., from the various Departments of State of highly political and scientific interest.

The Silk Court.—In this were to be found illustrations of silk manufacture and sericulture, not only of the cocoons from the mulberry-worm but also of many of the wild silkworms.

The Indian Palace.—This consisted of a Durbar Palace Hall in carved wood with workshops for the customary artisans connected with such a structure in India. Here native jewellers, carpet and other weavers, dyers, calico printers, brass and copper workers, stone and wood carvers were to be seen actually at work. The great stone gateway from Gwalior presented by the Maharajah Scindia to the South Kensington Museum was allowed to be sent here for exhibition, and formed an appropriate entrance to the courtyard. The whole scene represented a typical royal palace and courtyard in the Hindu-Persian style.

CANADA.—The enormous territory known to us as Canada occupies an area of 3,500,000 square miles, more than double the area of Hindustan in English occupation, and about equal to the

whole continent of Europe, and contains resources as great and varied as the countries which compose it. These resources, however, unlike those of Hindustan, are to a large extent dormant, and the scantiness of the population as compared with the great oriental Dependency is but too striking, only about 5 millions of people dwelling in Canada, against the teeming 250 millions of India. It will be readily imagined, even by those unacquainted with the territory, that Canada's exhibits would largely consist of natural productions, in many of which the land was known to be rich. It was hardly to be foreseen, however, that the Dominion would send such a display as that which adorned the central gallery during the summer of last year. There is no space available here to enter into a detailed account of the vast agricultural resources of the Dominion, and it must accordingly suffice to mention that the samples of grain crops, roots, vegetables, flowers, and fruit from nearly all parts of the territory show most conclusively that Canada is second to no country in the world for farming purposes, and the sight must have been a welcome one to many a struggling peasant, more especially when accompanied by the explanatory pamphlets which told him that land fitted to grow all this could be had for practically nothing. An important point to chronicle is the growing tendency of Canada to make its own agricultural implements. Many of those shown were first-rate both in principle and action, and the growth of the industry cannot fail to be of much utility to the development of the Dominion, since all the raw materials can be cheaply obtained locally.

Leaving agriculture, we pass to the kindred science of forestry, so much neglected in the Old World. For its forests Canada stands unrivalled, and accordingly we looked for a worthy representation of their beauteous productions. Nor was the expectation disappointed, since the result was the exhibition of all the treasures of the wolds which recent investigation by Professor Macoun and others has done so much to bring to light. The intense interest manifested in the forestry collections both by the agricultural community and the artisan classes was very marked.

Manufactures and industrial enterprises were an extremely interesting section, containing, as they did, illustrations of the clothing made in the Dominion and specimens of jewellery These two classes were fairly good, but were nothing in comparison with the truly magnificent furniture and decorations. It was here that the finely grained woods, got up with all the

polisher's or painter's skill, and fitted by the cunningest of craftsmen, were seen to their full advantage. There was a fine show of musical instruments which, if not of better tone than those of European make, certainly excelled in their gorgeous exterior workmanship. Some important samples relating to the building and engineering trades were exhibited, as well as some fairly good specimens of textiles, and in the vehicles good use was made of the fine Canadian woods. The leather exhibits and needlework, turnery goods, and fancy articles, with the native Indian objects, formed an attraction among the minor exhibits, and the specimens of stationery were remarkable for their excellent quality and the artistic skill displayed in their production. The machinery was good throughout, and some excellent shipping and railway models were a fitting accompaniment. The food exhibits were perhaps the most attractive feature of the court, as they appealed direct to the instincts of all classes of the community. Certainly Canada may be proud of the result of her efforts in this section. All kinds of comestibles were shown, and all of them good. Spirits and fermented drinks were shown in considerable quantities, as were chemical and pharmaceutical appliances, and all the adjuncts to the doctor's art.

New South Wales.—These exhibits were situated in the East Central Galleries, and a glance at the court at once displayed its thoroughly colonial character, raw products of all kinds forming the staple commodities shown. The display was, however, not confined to these, as exhibits showing the progress of the colony in the fine arts, education, furniture, and fabrics occupied prominent positions. The furniture section comprised magnificent suites in blackwood, beechwood, rosewood, forest oak, &c., with numerous household accessories. The next class (fabrics) brings us to the staple produce of Australia, and in none was the excellence of the wool more marked than in the mother colony's exhibits. The various wools generally clipped from the Merino breed were shown in great quantity. A good adjunct of the different fabrics made from wool completed—with some furs and skins—this class, as exhaustive in its character as it was excellent in detail. The minerals and mining exhibits formed a section hardly inferior to the foregoing, and embraced coal, silver, iron, copper, tin, antimony, and other ores. The timber and forestry section was highly representative, including as it did not only some extremely choice and valuable woods, but also barks, fibres, and gums. A special feature was the timber suited

to wood engraving, a welcome display in view of the growing scarcity of boxwood. Oils, soaps, tallows, and wax formed another important class, the first named comprising specimens of olive oil, fish oil, neatsfoot, and kerosene. The soap, candle, and tallow displayed were all excellent samples of the colony's productions, and the cheapness of the raw material suggested the possible competition on advantageous terms of New South Wales in the world's markets. Leather goods, horns, and hides were all well represented. The food products were the last section which claim notice. Chief among these were some choice sugars, flours, and other meals, biscuits, arrowroot, tapioca, and sago. New South Wales butter and cheese were also shown, and their quality was said to be all that could be desired. Frozen carcases of sheep from this and the other Australian colonies were on sale at low rates in the Colonial Market annexed to the Exhibition.

Victoria.—This thriving young colony succeeded with characteristic energy in making a capital display. To a certain extent the Australian exhibits all partook more or less of the nature of those from New South Wales, those of Victoria from its similarity of latitude resembling them in this respect most strikingly. Lastly, but certainly not least, were the mineral exhibits. New South Wales has its unrivalled clip of wool, South Australia its grain, Queensland its bountiful pastures, but Victoria in its rich deposits of gold has a still more remunerative industry. Gold is admitted to have made the fortunes of Victoria, "uplifting the colony in a night to the position of a nation and a power in the world, and advancing her destinies hundreds of years at one bound." The quantity of gold exported in the interval has been enormous, and its value could hardly have failed to materially influence the prosperity of any nation. It was no wonder then that a very conspicuous position was given in the Victoria Court to exhibits pertaining to this gold mining industry. Specimens relating to it, indeed, were to be found in all directions, and a huge gilt triumphal arch, which bore on it statistics of the output, formed the entrance to the court. Models of some thirty-eight large nuggets were also shown to throngs of visitors. The other minerals displayed, though important, were, by comparison with gold, of less popular interest.

South Australia.—The Court of this colony was perhaps the most tastefully decorated in the whole Exhibition, the picturesque representation of scenery and colonial life being the

first thing which caught the eye on entering. Turning down the adjacent steps was a sample of a backwoodman's hut, rough country carriages, and the splendid exhibits of wool. In pens were stuffed specimens of the pure Merino, the fleeces soft as silk, and of extraordinary thickness and quality, while hard by were some good fleeces on Lincoln sheep.

The alimentary products section contained, as will readily be imagined, some excellent samples of the wheat and flour for which South Australia is so justly famous. Other samples of cereals and agricultural products attested the great fertility of the colony. Wine growing is now extensively carried on, and with a constantly increasing success; some of the wines sent being of first-rate quality. Large quantities of the various brands were shown by Sir Samuel Davenport and others. A very attractive collection of fruit and vegetables, farm and garden seeds, added to the interest of the exhibits just enumerated, and collections of mining tools, rock specimens, specimens of copper and other minerals, formed a fitting termination to the attractiveness of this highly interesting court.

QUEENSLAND.—The wool exhibits were the most numerous and were of the same high class character as those previously noticed; they were however somewhat under the average weight owing to the severe drought prevailing during the preceding year. Next to wool we may perhaps place the mining exhibits. These latter comprised some fine specimens of the various lodes of the several metals with which Queensland abounds, prominent among which was gold, and good examples of mining tools, crushing machines, &c. The tropical produce consisted of extensive sugar exhibits, good specimens of coffee, samples of Queensland arrowroot, &c.

WESTERN AUSTRALIA.—A great feature of this court was the splendid timber exhibits, one gigantic polished log of *jarrah* being universally admired. This splendid tree, we are told, extends over the greater portion of the country. Other fine timbers of the *Eucalyptus* tribe were exhibited, as well as Swamp Oak and Sandalwood. These exhibits were fitly supplemented by collections of native and other grasses and fibrous plants, with herbs, roots and gums tanning materials, &c. The wool samples were well worthy of comparison with those from the other Australian Colonies. Some good farinaceous products were shown. The West Australian honey was excellent, wild bees being extremely plentiful and the flora of the colony well suited to them. The

fishery products and especially fish oils, formed a fine display in the court, as did also good specimens of mother-of-pearl. The swan skins and the fine furs of the colony found many admirers.

New Zealand.—These exhibits deserved special attention, and are worthy of a much longer notice than can be given here. The grouping closely resembled that of Australia. The specimens relating to fine arts and education well represented the state of these important social factors. Combined with education were the museum specimens; these, with the ethnological and natural history objects possessed a high scientific value. The palæontological skeletons, bones of extinct birds, stone implements of the moa hunters, and specimens of fishes were in this category, and were principally contributed by the Canterbury Museum. The grey apteryx and the redoubtable kea, or mountain parrot, were conspicuous among the avifauna.

Some excellent leather goods were shown and some equally excellent textile fabrics, mainly woollen. The wools themselves were of great importance and were not confined to Merino fleeces and cross breeds, some of the clips of the imported English breeds being also shown. These all testified to the excellence of New Zealand pastures for wool growing. Under agricultural accessories were some samples of bone dust and various manures; the machinery was mainly confined to mining. The alimentary products section contained some excellent cereals and farinaceous products, with butter and cheese of the finest quality, while the meat exhibits were not restricted to samples of the frozen mutton which has lately made such a stir in the home markets, but comprised also hams and bacon, rabbits, soups, and fish.

Fiji.—This new colony sent a representative collection of its manifold products, and as these were somewhat novel they excited an amount of attention from this circumstance in addition to that bestowed upon their merits.

Cape of Good Hope.—In this court were also four Kafirs with a Bushman and his wife, with four Malays who carried on their work as basket weavers. These were supplemented by native stone implements, carvings, dresses, and weapons, and formed a very interesting display. Close to the foregoing were the animal products sections, which included some excellent stuffed specimens of the curious long-tailed Cape sheep, goats, ostriches, and some splendid antelope heads and horns, as well as various fur-skins. The wool exhibits were an important

class, and contained some first-rate samples, not of course from the native sheep, but from the Merino, to the breeding of which great attention is now paid at the Cape. Mohair and Angora hair were also well represented. A striking feature of the Cape Court was the truly magnificent show of ostrich feathers, which attracted throngs of people daily to the central portion, and practical illustrations of feather dyeing and dressing increased the interest. Wild birds' feathers were also displayed, many of these being also of great beauty. Cape wines were well represented and were said to be of superior flavour, while raisins close at hand suggested the possibility of another lucrative industry.

NATAL.—The exhibits in this court were more of a tropical character in many cases than those of the Cape of Good Hope. Sugar, tea, coffee, rice, and arrowroot were among the first things that arrested attention on entering. In tea-growing Natal seems to have made very rapid strides of late, and now produces in quantity boxes of the finest Chinese and Indian brands. The sugar shown was in many cases equal to the finest production of the West Indies. The fruits and vegetables were numerous and important, as were also the specimens of timber. Minerals were represented by coal specimens, building stones, native earths used for pigments, iron and copper ores, asbestos and auriferous quartz.

ST. HELENA.—The exhibits from this island could be almost described in one word—Napoleon—everything relating to the great hero being brought into prominent notice. There was not much material to work upon, but the Commissioner managed to make up a very presentable collection, what with the Napoleonic relics, specimens of the zoology (or rather ornithology) of the island, botanical and geological exhibits, views and publications.

CEYLON.—These collections occupied a portion of one of the Indian galleries, and were in all respects an excellent and representative display. The pearls were a magnificent collection, as were also the specimens of coral, while the hunting trophies were of a character to excite the enthusiasm of all who take delight in sporting matters. The next class, "Food Products," brings us to the rising star of the Ceylon planter's hopes,—tea culture. It is only lately that the exceptionally favourable conditions under which tea planting could be started in the island have been grasped and acted on, but the result of the experiments has established the fact that tea can be produced

in Ceylon which bids fair to rival the choicest brands of China and Assam—thus repairing in a great measure the loss inflicted some few years ago by the ravages of the coffee-leaf fungus. The raw products section was a particularly good one, and embraced samples of oil seeds, oils, gums, dyes, fibres, tobacco, cocoa-nut palm produce, with some exceedingly fine planks of valuable cabinet woods and other objects. The agricultural implements, fishing appliances, and vehicles, though somewhat picturesque, were of a very primitive character. The art-work section, however, attracted probably the most attention, and was excellent throughout, the jewellery, gold plate, Kandyan and other silver work, brass work, ivory carvings (prominent among which was a superb example of the flower of the cocoa palm), and tortoiseshell work being much admired.

Mauritius.—The island of Paul and Virginia and the dodo contributed principally specimens of its raw products, among which may be mentioned a very fine collection of woods from the Botanical Gardens of Port Louis, and an equally good collection of fibres from the same establishment. Sugar, too, was well represented, and some medicinal plants attracted favourable comments. Two paintings of the extinct dodo formed an attraction in the court.

Straits Settlements.—These small settlements on the coast and adjacent islands of the vast Malay peninsula are daily assuming a much greater importance both politically and commercially, owing to the extension of the English protectorate over large areas of the contiguous native territory, the continual increase of their trade, and the development of the rich natural resources of the country. The ethnological exhibits were mainly of interest to the specialist, though picturesque enough to please the general public. Some specimens of literature printed in the colony, and some samples of drugs were shown, and also household appliances. The fabrics and art ware section contained some good specimens of dresses worn by Chinese and Arabs in the Settlements, and very creditable examples of metal work.

Hong Kong.—The exhibits from this compact little station adjoining the Celestial Empire were of the same interesting character as those which distinguished the Chinese objects at previous exhibitions.

North Borneo.—Here again the specimens were of great interest, but want of space forbids our giving even a cursory notice of them. This new acquisition, protectorate, or what-

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NORTH BORNEO.—Here again the specimens were of great interest, but want of space forbids our giving even a cursory notice of them. This new acquisition, protectorate, or what-

ever it should be called, is mainly to be credited to the energy and patriotism of Sir Rutherford Alcock and other gentlemen. A full account of its settlement, together with some idea of its resources, can be gained from the perusal of a work entitled "Her Majesty's Colonies" issued by the Royal Commission.

British Guiana.—The exhibits from this sole possession of England on the South American continent attracted much attention, the rarity of an opportunity of inspecting the undoubted resources of this colony adding an exceptional amount of interest to the display. Sugar is the principal product, and the excellence of Demerara in this respect is already well known at home. The settlement contributed some of the choicest specimens of sugar and rum in the exhibition, some fine woods and forest products, cacao, cassava, and other plantation produce, a large collection of medicinal and tanning barks, with fruits and other vegetables.

Jamaica.—In the immediate vicinity of the foregoing exhibits were the splendid collections from the West Indies, foremost among which come those from Jamaica. It should be stated at the outset that the tasteful arrangement and decoration of the whole of the West Indian Section was carried out under the directions of the West Indian Commissioner in a manner which left nothing to be desired. Jamaica sent numerous samples of its unrivalled rum, also of its sugar, coffee, and pimento, as well as other spices, products all of excellent quality, but too well known to need special description. Arrowroot, dye woods, cacao, botanical specimens, cinchona and other objects did much to popularise and illustrate the splendid resources which, notwithstanding its many reverses, still exist in the "Pearl of the Antilles," while some excellent views helped to render the scene as realistic as possible.

Trinidad.—Like Jamaica, Trinidad sent samples of its sugar and rum, cacao, coffee and food products, excellent samples of preserved fruit and vegetables, large quantities of oils, gums, barks, &c., with cigars, tobacco, and other plantation produce. The collection of woods belonging to Mr. Devenish were the best in the whole section, and were most carefully and completely classified. The objects illustrative of arts and manufactures also deserve special mention, as do the botanical specimens.

Barbados.—The exhibits from this colony were very similar to those from the two last mentioned, but some special points deserve notice, such as the samples of petroleum which is found in the island, the Carib relics, some excellent specimens of

needlework and fancy articles, and some interesting collections of West Indian shells.

WINDWARD AND LEEWARD ISLES.—These are well represented, the food products being exceptionally good.

THE BAHAMAS.—These beautiful islands sent a magnificent collection of natural history specimens, woods, fibres, and some samples of their unrivalled sponges and other objects.

BRITISH HONDURAS.—This colony, by comparison of its exceptional advantages, seems to be the most neglected of the whole domains of the realm. Its rich soils are suitable for all kinds of tropical produce, and the land can be most cheaply obtained, nevertheless its advantages seem to be quite unappreciated. Samples of its unrivalled woods and its plantation produce fully bore out the opinion which competent authorities are known to entertain of its capabilities.

WEST AFRICAN SETTLEMENTS.—The local committee for the Gambia succeeded in forming a most valuable and interesting collection, well illustrating the produce of the country and its natural resources.

SIERRA LEONE.—The exhibits from this colony bore the air of a quiet business-like settlement of a thoroughly West African character. Numerous samples of grain and pulse, spices, arrowroot, and other starches, ethnological and natural history specimens, all most judiciously selected, so as at once to leave out no material object nor to duplicate specimens from the neighbouring colonies.

THE GOLD COAST COLONY.—Two cases in the centre of this court contained a large collection of gold ornaments and jewellery, entirely of native workmanship. There was also a beautiful and interesting collection of gold ornaments of native workmanship, together with a curious collection of quaint figures made of iron by the Ashantis, as well as specimens of osprey beads, which are valued by the natives above gold.

LAGOS.—The collection from this settlement contained, in addition to its own exhibit, a number of objects from the neighbouring Niger protectorate. The principal native industries represented were cloths and embroidered robes, worn by Mohammedans, grass cloths and mats, basket work, bamboo, and other furniture.

MALTA AND CYPRUS.—The exhibits from these Mediterranean Colonies were of the greatest interest, but space forbids our giving any details.

PART II.

ARCHITECTURE AND PUBLIC IMPROVEMENTS, ART EXHIBITIONS, SCIENCE, MUSIC, SPORT, LEGISLATION, STATISTICS, CHRONICLE AND OBITUARY, 1885–86.

ARCHITECTURE IN 1886.

THE most noteworthy feature in the review of Architecture during the past year has been the temporary collapse of the scheme long contemplated for rebuilding the Admiralty and War Offices. The Government issued definite instructions to the competing architects as to the requirements for these offices, but provided so limited a space upon which to adapt them that, even supposing that the whole available site were covered and no part given up for the necessary widening of Whitehall, the space at the disposal of the architects would have been too small.

The result has been one of extreme disappointment. The successful drawings fulfilled to a large extent the official requirements, but the elevations were almost unanimously pronounced to be wanting in dignity, and the plans were open to the fatal objection that the courts were too small in proportion to the great height of the buildings which surrounded them, and were thus wanting in proper provision for light and air. It was clear, further, that the erection of a building of the great height intended would have an absolutely fatal effect on the view in approaching Charing Cross from the south, unless the street were widened, and that the entrance to the Mall in St. James's Park would be very much too confined. These objections were pointed out in a very temperate way to the then First Commissioner of Her Majesty's Works (the Earl of Morley) by a deputation from the Royal Institute of Architects, and the whole subject is, at present, in abeyance. The delay as to this great work has been no doubt increased owing to the absurdly rapid changes in the offices of Her Majesty's Works. Within a very short time there have been four Chief Commissioners, viz., Mr. Shaw-Lefevre, Mr. Plunket, Lord Morley, Lord Elgin, and Mr. Plunket again, whilst Mr. Mitford, the "permanent official," has given place to Mr. Primrose, a gentleman from a different office.

The new street (Shaftesbury Avenue) from Piccadilly Circus to Hart Street has been at length opened. Like nearly all the new streets made by the Metropolitan Board of Works, it has been planned on the principle of getting in the cheapest way from somewhere near one given point to somewhere near another one, without the slightest attempt being made so to direct its course as to add to the beauty or to the picturesque effect of the city. The Metropolitan Board of Works have in this case destroyed the Regent Circus (one of the very few examples of picturesque street planning in London) and lost sight of the fact that the course of the new street might have been directed towards the portico of Bloomsbury Church, which would then have formed a pleasing ending to it, and have led to the opening out of one of our grandest buildings, the British Museum, now hidden away in Great Russell Street.

In the City proper, a slight alteration in rebuilding part of the Equitable Life Office has further opened out a view of the Bank of England, Royal Exchange, St. Mary Woolnoth, and the Mansion House, which with the church towers in the background is most effective. If by some fortunate chance, the Globe Insurance Office were rebuilt in a manner more worthy of its position, it would be difficult within so limited an area to find a more picturesque civic group.

Amongst important works recently began must be noticed, first, the new bridge below the Tower of London, designed by the City Architect, Mr. (now Sir) Horace Jones, on a principle almost new in this country. Sir Horace well deserved the honour bestowed upon him by Her Majesty, not only for his work in this bridge (in the execution of which he is associated with Mr. Wolfe Barry) but as the author of many other meritorious works at the Guildhall, the great markets and other edifices. Whilst honours have been largely bestowed upon other professional men, he is now the only architect who is so distinguished.

Looking at the architectural work of the year generally, we must again note the progress towards a Transitional style, viz., a mingling of Gothic forms with Renaissance details. The exhibition at the Royal Academy, taking it as a fair average view of the year's work, shows that for the ordinary class of houses, whether commercial or private, in town, by far the larger number are in the above described Transitional style, nearly all the remainder being Gothic (chiefly Perpendicular). The same

remark applies to a large proportion of schools and colleges, but in ecclesiastical buildings Gothic still retains its pre-eminence, the Early English holding its own against the Perpendicular; and it is only in municipal and other such public buildings that we find any large proportion of Renaissance design. Even then, its most important example, viz., Mr. Young's at Glasgow, belongs to an earlier date than this.

There is no denying that very picturesque effects are produced in this Transitional style, but it certainly becomes the duty of those architects who take the lead in the practice of it, to show distinctly by their examples that these effects can best be produced by a careful study and refined use of forms and details which need not be coarse and ugly although they may be quaint. It will be noticed that in the description hereafter given of the materials used in the several buildings, cement facing has not been employed in any one case.

Various.—Her Majesty's gold medal has been given this year, at the recommendation of the Council of the Royal Institute of Architects, to M. Charles Garnier, President of the French Academy of Fine Arts, and known best probably as the Architect of the Grand Opera House at Paris.

Mr. Edward I'Anson has succeeded in rotation Mr. Ewan Christian as President of the Institute. The qualifying examination has been successfully carried out, twenty-three gentlemen having passed it and been elected as Associates during the past year, and twenty-seven as Fellows.

Mr. H. J. Middleton, well known by his work on Rome, has been appointed as Slade Professor of Fine Arts in the University of Cambridge, to succeed Mr. Sidney Colvin, who has accepted the Curatorship of Prints and Drawings at the British Museum. Mr. Le Page Renouf has succeeded the lamented Dr. Birch there as Keeper of Oriental Antiquities, and Mr. A. Stuart Murray has been appointed Keeper of Greek and Roman Antiquities, on the resignation of Professor C. T. Newton, who has for many years occupied so zealously and well that important office.

Mr. F. C. Penrose has been offered and has accepted the Directorship of the British School at Athens for the first year.

The severest loss which has occurred in our ranks is that of Mr. James Fergusson, Gold Medallist and past Vice-President of the Institute, and for a short time architectural adviser to Her Majesty's Office of Works. Beginning his business life in a mercantile house in India, he soon became deeply interested

in the antiquities of the country, and devoted his energies to a careful study of them. His first work ("Rock-cut Temples") was published in 1845. Subsequently he published in 1876 his "History of India," and one of his latest works, in conjunction with Mr. Burgess, was "The Cave Temples of India" (1880). To the above studies he added that of fortification, on which he published "A Proposed New System." Visitors at our International Exhibition of 1862 will remember his model of a fort which many experienced officers considered to be well-nigh impregnable. So great, in fact, was his admitted knowledge of the subject that he was appointed by the Government to assist in advising as to the proposed defences of the Kingdom.

He published in succession "True Principles of Beauty in Art," "Handbook of Architecture" (1855), and his "History" in 1865. His theories put forward in his "Palaces of Nineveh and Persepolis" (1851), have been generally accepted; and to a large extent have been those as to the mode of lighting Grecian Temples, as stated fully in his latest work, the "Parthenon" (1883). His theory as to the Holy Sepulchre at Jerusalem is explained in his "Topography of Jerusalem" (1847), and his "Temples of the Jews" (1878), both the outcome of years of careful study and deep research.

He died at the ripe age of 78. Next to his, the most noted name amongst those connected with our art is that of Dr. Samuel Birch, whose acquaintance with the architecture, as well as the antiquities of the East, is of European fame. One of his earliest writings was the text to Owen Jones's views on the Nile (1842), and in his subsequent works, especially in the new edition (1878), of Sir G. Wilkinson's "Manners and Customs of the Ancient Egyptians," he devoted a large share of his attention to the architecture of the country. For many years he was Keeper of Oriental Antiquities at the British Museum, and however ably his place may be filled, his kind and genial help will long be missed by students in Eastern art.

A well-known name has also disappeared, viz., Mr. E. W. Godwin, whose great power of design bid fair, at one time, to secure for him a high position as an architect. His best known work is, perhaps, Northampton Town Hall. For many years he was closely connected with the "British Architects' Journal," and came, lately, prominently before the public as having designed the scene, dresses, and general arrangements of the Greek play, "Helen in Tröas."

In Mr. Kyrke Penson, of Ludlow, and Mr. Sancton Wood, of London, the profession has lost two well-known men, both Fellows of the Institute, and in the Rev. Benjamin Webb, a very able writer on ecclesiastical archæology has been taken from us.

Public Buildings.—Alloa.—A public hall with rooms for science and art, reading and billiards, has been erected by Mr. Waterhouse, R.A. Its chief features are a fine staircase, *c.* 32 feet square, going up to the first floor only, but with a picturesque gallery on the second storey to give access to the rooms there. The hall is 95 feet by 49.

Birmingham.—The building for the Art Galleries and Museum has been opened by the Prince of Wales. It has a frontage of 300 feet to Edward Street, and very satisfactorily completes the group of civic offices, the design of the whole being by Mr. Yeoville Thomason, in "the Classic style," "freely adapted in detail to modern requirements." The galleries are on the first floor; the first being 58 feet by 19 feet, succeeded by a circular one 56 feet in diameter (reminding one of the Octangular Tribune at Florence, whose diameter is *c.* 42 feet), two galleries 52 feet by 27 feet, one on each side of the "Industrial Hall," which is 97 feet by 52 feet, and the Great Picture Gallery, 84 feet by 43 feet.

Chester.—The Grosvenor Museum of Archæology, Natural History, Science and Art, has recently been opened. It has been designed by Mr. T. M. Lockwood, in "the style of the Old Dutch Renaissance" of seventeenth century. Nearly the whole of the lower floor is devoted to Science, and the upper one to the School of Art, 66 feet by 25 feet. The museum gallery is 59 feet by 23 feet, and Lecture Hall, 45 feet by 30 feet.

Dublin.—The tenders for the new Science and Art Museum and Library (Messrs. Dean and Son, architects), were for amounts varying from 181,000*l.* to 110,000*l.*, at which latter sum a tender has been accepted.

Darlington.—The Library (for 24,000 volumes), reading-room, &c., is a Renaissance building in red brick and stone, designed by Mr. G. G. Hoskins, by whom also the fittings were designed. The edifice is one of considerable size, having a frontage of 106 feet to Crown Street, and 92 feet to East Street.

Edinburgh.—Designs by Messrs. Burnet and C. C. Lindsay, for the International Exhibition of Industry, Science and Art, were chosen in a competition, and have been erected, the tender

being for *c.* 30,000*l.* A portion of the building is intended to be permanent. The main feature is a central avenue nearly 1,000 feet long (including Old Edinburgh) and 30 feet wide, with seventeen courts on each side, a wide transept in centre, and another, on a grand scale, forming a great hall, with dome at the intersection, at the main entrance.

This building discards the circular roof designed by Sir Charles Barry, which formed so pleasing a feature in the transept of the 1851 Exhibition, and which has been retained almost invariably in every building of the kind since, and reverts to the old ridge and furrow roofing, giving to the interior a somewhat mean appearance, but the main entrance and grand hall are pleasingly designed, and the whole building has been pronounced by a thoroughly capable critic, as "well adapted for its purpose, both in general design and detailed arrangement." At the end of the long court is a picturesque reproduction of Old Edinburgh.

Elgin.—A new Town Hall has been erected at a cost of *c.* 8,000*l.*, from the designs of Messrs. Mathews and Mackenzie, selected in 1883 in a competition with thirty-six architects, the style being "Scottish Renaissance of the seventeenth century." The chief external feature is a tower 125 feet high over the entrance porch. There are two halls, being respectively 120 feet by 50 feet, and 60 feet by 30 feet.

Folkestone.—The Art Treasures Exhibition building was designed by Mr. J. Gardner, its main feature being a central hall, a gallery 210 feet long by 70 feet wide, with arched roof. At each side of this is a court 100 feet wide, surrounded by galleries of a width of 30 feet. The plan is good and the lighting satisfactory.

Gateshead-on-Tyne.—The new Volunteer Drill Hall combines the hall itself with orderly and adjutant's rooms, armoury, officers' and non-commissioned officers' and men's rooms &c. The architect is Mr. Knowles, of Newcastle, the materials, red brick and stone.

Hindley.—A picturesque building (Transitional) has been designed for the Free Library and Museum by Messrs. Worthington and Elgood, and is being proceeded with. The chief rooms are *c.* 50 feet by 25 feet, on ground and one pair stairs. In the basement is a room of similar size, with the requisite offices for a workmen's club.

London.—A new Hall for the Cutlers' Company is being erected

for them by their architect, Mr. T. J. Smith, on the site of Sir C. Wren's College of Physicians, in Warwick Lane. The main hall is 54 feet by 29 feet, with an ornamental open timbered roof. The building is in "the Jacobean style," carried out in red brick.

The Drill Hall of the London Scottish Rifles, recently erected from the designs of Mr. Macvicar Anderson, is a good example of this comparatively new class of buildings, combining the hall (as the one at Gateshead) with accommodation for the headquarters of the regiment. It comprises rooms and the requisite conveniences for the officers, committee, secretary, and orderly, a canteen with reading and non-commissioned officers' rooms, the armoury for 1,000 rifles and workshop, office, and stores. The hall itself is 120 feet by 62 feet. The rooms are placed in galleries over each end of the hall, hung up from the roof without any supports under to interfere with the drill.

Chelsea.—The new Vestry Hall, by Mr. J. M. Brydone, in the style of Palladio, is of red brick and stone. The Vestry Hall is 90 feet by 45 feet, and is well planned with a wide corridor on each of the two long sides, and a spacious lobby in front. The council chamber is 50 feet by 30 feet.

Liverpool.—A new building for the Prudential Assurance Company has been erected from the designs of Mr. Waterhouse, R.A., in red brick and terra-cotta, in the Pointed style, treated in his well-known manner. An angle projecting window and bold chimney and gables produce a very effective elevation.

Manchester.—An Exhibition is to be opened as in other cities, in 1887, to celebrate the Jubilee of Her Majesty's fiftieth year of reign. A design has been accepted from Messrs. Maxwell and Tuke, showing a high nave 1022 feet long and transepts and dome with side courts (of less height) 30 feet wide. There will be separate courts for Fine Arts and for Music, the latter 150 feet by 100 feet. By the use of square domical roofs to emphasize the more important parts, the general outline of this huge building promises to be effective. "Old Manchester and Salford" will be represented, this part of the work being undertaken by Messrs. Darbyshire and Smith.

Newcastle-under-Lyme.—Jubilee buildings, School of Art, Library, Baths, &c. The design selected in competition (Mr. Lockwood, referee) was by Messrs. Sugden, as noted in last year's "Companion," but the authorities wishing to have some alterations made, fresh designs were obtained and the works

intrusted to Messrs. Sugden, Blood, Chapman, and Snape, the result being, very naturally, an inferior design in a style of very free and florid Italian described as "French Classic." The assembly hall is 90 feet by 50 feet, the council chamber 50 feet by 35 feet, and the libraries *c.* 100 feet by 25 feet in total length. The swimming baths are 85 feet by 30 feet, and 51 feet by 25 feet respectively.

Portsmouth.—The New Town Hall is designed by Mr. W. Hill in the Italian columnar style. It has a 6-columned portico in centre, with a well-designed tower behind, and the composition is a very effective one. The grand flight of steps to the portico gives extra dignity to it, but has the same defect as that of the National Gallery and University College, London, viz., that the grand entrance is not available for carriages.

Another of the large offices for the Prudential Assurance Company has been erected by Mr. Waterhouse, R.A., in this town. It has been designed (purposely, I believe) much on the same lines as those at Liverpool, London, and Manchester.

Sunderland.—The Municipal buildings are well designed by Mr. R. Benyon, whose design in the Renaissance style was selected in competition by Mr. Waterhouse, R.A., having a plain rusticated ground storey with bold, arcaded windows on one pair with enriched tympans and spandrels, the centre and wings being marked prominently by Corinthian columns. A grand tower, direct from the ground, gives further importance to the central entrance. The building is to be proceeded with at once.

Wolverhampton.—The School of Art is "Classic" (Doric and Ionic), to be in harmony with the Art Gallery adjacent, and designed by Mr. Chatwin. On the lower floor are a science-room, 78 feet by 24 feet, and modelling and designing-rooms 60 feet by 26 feet. On the ground floor are two elementary schools, 61 feet by 24 feet, and 27 feet by 20 feet respectively. On the first floor are the antique room, 45 feet by 45 feet, and painting-room, 32 feet by 24 feet. The total cost of the building *c.* 8,000*l.*

At Wolverhampton also a drill hall has been erected from the design of Mr. D. Arkell, the size of the hall being 184 feet by 76 feet, and the cost *c.* 8,000*l.* (That at Norwich is 140 feet by 60 feet.)

Clubs.—Birmingham.—The Conservative Club in Temple Row will soon be completed, at a cost of *c.* 13,500*l.*, from the designs

of Messrs. Osborne and Reading. It is a good adaptation of Italian Renaissance—with projecting balconies and bay windows —very well and boldly carried out. On the grand storey are the morning and writing-rooms, about 50 feet by 30 feet; telegraph and strangers' room, luncheon-room, *c.* 50 feet by 26 feet. On the first floor are the dining-room, 47 feet by 43 feet, two billiard-rooms, &c., the smoking-room, 48 feet by 22 feet, private dining-room, 30 feet by 18 feet, with dressing-rooms, &c. On the upper floors are members' dressing-rooms, also rooms for stewards and servants, having separate staircases and corridors. A Conservative Club-house is about to be built for *Aston Manor* from the designs (in the Gothic style) of Mr. Arkell, selected in a limited competition. It provides a committee-room for 200 persons on the grand storey, and on the first floor reading, card, and billiard-rooms (for three tables), smoking-room for 150 persons, &c. The kitchens, &c., will be on the *second floor*. In the rear will be a hall, 83 feet by 50 feet, seating 900 people. The Liberal Club (referred to in last year's "Companion") designed by Mr. G. A. Cossins for 1,200 members is now completed. It is a bold and picturesque building. The dining-room, 48 feet by 20 feet, and luncheon-room are on the first floor, and over these are smoking, billiard, and private dining-rooms. On the fourth floor are bed-rooms for members. *Above these* are the kitchens and other domestic offices, and above these again are bed-rooms for female servants. *Paisley.*—The new building for the Liberal Club in High and Churchill Streets has been erected from the designs of Mr. J. Donald, at a cost of *c.* 8,000*l.*, but has the upper part only used for the purposes of the Club, the ground floor being used as shops. The reading-room is 48 feet by 23 feet, the smoking-room 37 feet by 16 feet, billiard-room 44 feet by 32 feet, and there are writing and committee-rooms, &c. On the second floor is a hall, 57 feet by 37 feet, with a separate entrance.

Hospitals, &c.—I have to record, in Burnley and Liverpool, the further extension of the circular-ward system as to which a discussion took place at the meeting of the Sanitary Institute at Leicester, Mr. H. S. Snell there entering minutely into the cost of construction and maintenance, the ventilation, cheerfulness, &c. The Victoria at Burnley was erected from the designs of Messrs. Waddington, on suggestions made by Professor John Marshall. The wards are circular and only one storey high. *Birmingham.*—The Jeffray Hospital, referred to in "Companion" for 1885, is in the "Queen Anne style," by Mr. Yeoville Thomason.

It is constructed with red brick and terra mouldings, and was opened by the Prince of Wales at the end of 1885. It forms three sides of a shallow square. *Bristol.*—The Almshouses in Rupert Street (Mr. E. H. Edwards, architect), in the Jacobean style, for eight old women, though small, merit attention from the very able and picturesque way in which the front is designed; each living-room will have a small scullery (with cooking range), larder, &c. *Bakewell, Staffordshire.*—The Infectious Diseases Hospital which has been recently opened, was designed by Mr. G. W. Bradford on the pavilion plan in five separate buildings. The wards, heated by Manchester stoves, contain from 2 to 6 beds each, the total number of beds at present being 28, taking the cube for each bed at 2,000 feet and the floor space 144. Air gratings are provided under each bed, and the foul air is removed by ventilating flues in each chimney stack. The disinfecting closet is worked on a new principle by superheated steam, and the ordinary w.c.'s are replaced by earth closets supplied with finely sifted ashes mixed with dried earth. *Harrogate.*—The design, by Messrs. Worthington and Elgood, was selected by Mr. Waterhouse, R.A., in a competition for the Bath Hospital and Convalescents' Home, the style being that "known as the French château." The two departments are on either side of a common hall; the Home providing accommodation for 30 males and 25 females, and the Hospital for 40 males and 35 females, the allowance for each Hospital inmate being 1,200 to 1,250 cubic feet. The invalid wards contain six beds each. The principal rooms face to the south, and the building has been planned so as to give a cheerful and domestic aspect rather than that of an infirmary. *Kingston.*—A small hospital has been designed by Messrs. Gibbon and Woodruffe, for a similar purpose to the last, and, like it, will be supplied with earth closets. The slop-water is to be distributed over the land, and the effluent-water carried off by drainage. *Liverpool.*—The Homœopathic Hospital for fifty beds is from the designs of Messrs. Holme. The wards are 69 feet by 24 feet, lighted from each side, and with convalescent room to each. The foul air is to be taken *down* by downcast shafts to the bottom of upcast shaft, up which it is to be carried off. The design, in the "Renaissance style," with large dormer windows and bold chimneys, is very effective. In Liverpool, also, the Royal Infirmary (Mr. Waterhouse, R.A., architect) has four of the wards on the circular plan, each 56 feet in diameter and for 18 beds. These wards are

heated, each by three steam radiators, between three central open fireplaces. The vitiated air is withdrawn by flues surrounding the smoke flues. There are also eight rectangular wards for 190 patients. *Watford.*—One of those small but very useful buildings, cottage hospitals, has been designed by Mr. C. P. Ayres, who has produced a very pleasing effect by the careful arrangement of its plans and of the outlines of its roofs. *Whitchurch.*—Another building of the same class as the above has been erected at Whitchurch from the designs of Mr. Mountford. The general wards are on the ground floor, and a very picturesque effect has been produced by placing the convalescent ward in the roof, its position being marked by a large half-timbered gable and balcony. The other wards are only one storey high. In addition to usual wards and offices, there are operating and disinfecting-rooms. The whole cost is stated to be *c.* 1,000*l.* *Woking.*—The most carefully studied in external effect and also the most elaborate of all the hospital buildings here noted is, perhaps, the Convalescent Home, the first portion of which has been finished about twelve months, another wing and the chapel, &c., not being as yet erected. The design is in the Perpendicular style, very bold, with a fine entrance tower, and there is an artistic use of projecting windows, chimneys, &c., which give the whole a very picturesque effect. *Yorkshire.*—The Lunatic Asylum at Menstone, for 850 patients at present, is on the angular plan, wherein the long corridors on each side of the usual central block slant off rearwards, the patients being in separate blocks, each having dormitories, day-rooms, single cells, &c., complete; and each hung up, as it were, from the corridors *en echelon*, one block thus receding behind the next one nearest to the centre, but having an equally good front view, and being quite isolated from any other. This looks odd on the plan, and would be very inconvenient with a small number only of patients; but in a large asylum it brings them nearer to the central offices (chapel, kitchen, laundries, &c.), and affords better light and aspect, means of ventilation, &c., than by the old forms. The architect is Mr. J. V. Edwards, the style being "late Tudor." A smaller one for 300 patients, now being erected for Derby borough, from the designs of Mr. Jacob (associated with Dr. Greene), is on the quadrangular plan, as being more convenient for so small a number.

Banks.—Until recently these have been designed almost entirely in the Renaissance style. Now, however, I have to

record departures from this. At *Charing Cross*, the new banking-house for Messrs. Cox, which occupies a prominent position on the eastern side, is being erected by Mr. Christian in a Transitional style, and gives, in a stone front, the greatest amount of light consistent with complete stability. At *South Kensington*, the new building for the London and County Bank is a still bolder innovation, being in red brick and terra-cotta, from the designs of Mr. J. Williams in the Flamboyant style, highly ornamented, and very effective.

Country Mansions.—In the designs for these, the Gothic, chiefly of a late type, is well represented. As examples, we may take the Earl of Sefton's house, Abbeystead, at Wyresdale (Messrs. Douglas and Fordham, architects), as shown in the R.A. Exhibition, No. 1626; Mr. Blyth's house at Stanstead (R.A., No. 1657), designed by M. Caröe; the Rev. R. H. Howard's Wygfar, St. Asaph (Messrs. Douglas and Fordham, architects); Mr. Allen's, near Cardiff (Mr. Vaughan, architect); and a smaller house at Beckenham (R.A., 1676), designed by Mr. Ladds.

Berkshire.—Buckhold, near Newbury, is being erected for Mr. Herbert Watney, M.D., by Mr. Waterhouse, R.A. It is in brick and terra-cotta, part being also covered with upright tiling, and the garden front, in particular, is very picturesque. There is a large hall of entrance, 45 feet by 25, so that it can be used for meetings, and a walled garden, 60 feet by *c.* 40, on to which the servants' offices look. In *Kent*, near Sevenoaks, a large mansion (Wildernesse) is being so altered for Lord Hillingdon, by Mr. Macvicar Anderson, as to be almost a new house. It is in the Italian style with a tower 28 feet square and 73 feet high, and the chief feature is the hall, with staircase, about 95 feet by 31 feet, and 27 feet high, surrounded by galleries above. The entrance hall is 31 feet by 22 feet, and the drawing, morning, and dining-rooms, *en suite*, with wide doors, *c.* 120 feet by widths of 30 feet to 24 feet. A library, 60 feet by 20 feet, with writing, smoking, and billiard-rooms, boudoir and study, with sixty-seven bed-rooms, combine to render this a very important work. At *Wrotham*, Kent, Mr E. R. Robson is erecting a mansion in "the Italian style" for Sir S. Waterlow, the aspect being to the south, and the materials red brick and stone. The main (south) front is flanked with two towers. The entrance is on the north by a *porte-cochère*. The lengths of the rooms, &c. (the widths being *c.* 18 feet), dining 26 feet, drawing 36 feet (with bay windows at side), morning-

room 20 feet, billiard-room 24 feet; boudoir 15 feet; inner hall 25 feet by 19 feet. In *Scotland* the National Baronial style, with mullioned windows and bell-roofed turrets, has been used by Messrs. Wardrop and Reid in the design for Lord Lovat's castle at Beaufort, near Beauley, Inverness. It is in all 300 feet long from north to south, and 80 feet wide on the average, and is built partly on the site of the old Castle of Dounie. The entrance is under a tower flanked by a circular one 100 feet high, the entrance hall being 35 feet by 21 feet. The staircase has an open timbered hammer-beam roof. The large gallery is 62 feet by 32 feet, and there is a chapel, with wood panelled barrel ceiling. At *Doonside*, in the midst of the scenes made famous by Robert Burns, Mr. Macvicar Anderson is erecting a mansion in "a plain type of Elizabethan," with an octagon turret, 16 feet diameter and 84 feet high. The principal fronts are to the south and west, and the dimensions of some of the chief rooms thus: two drawing-rooms (together) *c.* 58 feet by 20 feet, dining-room 32 feet by 20 feet, breakfast-room 20 feet by 18 feet, library 20 feet by 20 feet, study 20 feet by 16 feet, and billiard-room 28 feet by 20 feet. In *Ireland* Messrs. Deane have recently finished a mansion, in late Gothic, for Mr. W. M. Bruce at Blackrock, co. Dublin.

This list, though a short one, shows some very creditable additions to the architectural work of the country.

Churches, &c.—Out of nearly fifty churches and chapels of which I have notes as having been lately erected, or being in course of erection, three only are in the style of the Renaissance or in the Transition to it: two of these exceptions are Presbyterian. All the others are Gothic in design, the Early English and Perpendicular styles being those most usually adopted.

Blackpool.—The church at Southshore, for 1,000 worshippers, has a wide nave and narrow aisles, transepts, and flêche over chancel arch, but no external division between nave and chancel, thus showing a long unbroken line of roof. The tower is 150 feet high. The interior of the church is to be finished in buff-coloured terra-cotta. The architect is Mr. R. Knill Freeman.

Bolton.—Two churches have been erected here by the munificence of Mr. T. Greenhalgh, from the designs of Messrs. Paley and Austin, viz., All Souls, consecrated in 1881, and St. Saviour's. This latter, for 800 persons, is constructed of red brick with stone dressings, and is cruciform, the nave 50 feet wide without aisles, and 86 feet long, and the chancel 35 feet by 25 feet, with

double aisles for vestries screened off but otherwise open to the nave and chancel. A western tower, very well designed, with richly ornamented turrets and battlements, gives dignity to the whole.

Another generous donor has been the Duke of Westminster, for whom Mr. Wade has designed the Early English church at *Handbridge*, near Chester, for 650 worshippers, a cross church with a well-proportioned western nave and spire. A picturesque effect is given to this tower by an octagonal projection for a baptistery. The cost *c.* 13,500*l.* It is proposed to seat the body of the church with chairs.

At *Luton*, near Chatham, Kent, a new church in the style of "the fourteenth century Geometrical merging into the Later Flowing Tracery" has been erected from the designs of Mr. E. R. Robson. There is a tower to the south-west, at the principal entrance. The aisles, only 4 feet wide, are used only as passages to the nave, which is 32 feet wide, as above noted at Blackpool —a plan which is coming into use now in order to give greater facilities for seeing and hearing. All are under one great roof: the nave is 100 feet long, and the chancel 28 feet by 21 feet.

At *Torre*, near Torquay, the first portion of the new church, designed by Mr. J. L. Pearson, R.A., "in the style of the fourteenth century," for 800 persons, was opened in the early part of 1886. It has transepts and apsidal chancel. The nave has an open timbered roof, but the aisles are groined. The whole interior is lined with red sandstone. The total length of the church is to be 141 feet.

Truro Cathedral.—The portions not yet ordered are the nave, with its aisles, the western towers, and the upper part of the central tower. All east of the crossing has been covered in for some time, and the great transepts, crossing, and baptistery are in a very advanced state.

Westham.—St. Thomas's Church, for 850 worshippers, is from the designs of Mr. J. O. Scott, in the style of the "Late Form of Flowing Decorated," and has only nave and chancel, with wide south aisle, and is chiefly of brick with some slight amount of stonework. It is in two storeys, the lower one being occupied as vestries, &c., at the east end, and the rest chiefly by six class-rooms, varying from 50 feet by 26 feet, to 26 feet by 16 feet.

Willesden.—In St. Andrew's, Mr. J. Brooks gives us one of his very effective-looking churches, with very little ornament but bold telling outlines. It is to seat 900 persons, and consists of nave, aisles, transepts, and chancel, the aisles being groined.

A very useful part of the church will be a morning chapel for 80 persons, apsidal, and very picturesquely treated, on the north side of the chancel, for small congregations such as at early week-day services.

At *Leicester*, the Clarendon Congregational Church, for 500 persons, is in the "Gothic style of the fifteenth century." There will be three vestries and a library. The architect is Mr. J. Tait, who has designed a very bold and picturesque west tower.

At *Birmingham*, the Bristol Street Congregational Church has been built from the designs of Mr. J. A. Cossins in the style of the "Early thirteenth century." The nave is 97 feet long, but the aisles are only 5 feet 6 in. wide, serving as passages. A short chancel and north and south transepts leave little difference between this and one of the Established churches. In connection with the church are four class-rooms, and a hall seating 200 persons.

At *Birmingham*, again, the Corporation Street Wesleyan Chapel and extensive School Rooms, &c. (Mr. J. L. Ball, architect), a massive and well-designed structure in the Flamboyant style, produces a somewhat startling effect by appearing above a very fragile-looking row of shopfront windows. But a great deal of clever designing is shown in meeting the difficulties of an irregular site and a great fall of the ground.

A still greater inroad on the ordinary conventional style of building is the Friends' Meeting and Institute in Clifford Street, *York*, which the architect, Mr. Thorp, has designed in "the style of the French Renaissance" carried out in red brick and stone at a cost of *c.* 5,000*l.*

For the Roman Catholics, several new places of worship may be noted. At *Hampstead*, Messrs. Goldie and Child have designed St. Mary's Church (Perpendicular). The west end has a fine window, flanked on one side by a tower, and on the other side by a priests' house, forming altogether a very pleasing combination.

At *Wellingborough*, the new Roman Catholic church (Mr. S. J. Nicol, architect) is a very pleasing composition in the Perpendicular style of a cruciform, aisleless church, with priests' house adjoining, and a detached tower at the north-west corner, but too costly to be erected at the outset. The combination of the priests' house, as noted above in Roman Catholic churches, and of public halls, as in Nonconformist places of worship, offer chances for picturesque effects which are lost in the ordinary designs for the Church of England's services.

Buildings for Educational Purposes.—In these, although a large proportion still are designed in various forms of Gothic, a distinct advance towards the Transitional style, so often before alluded to in this review, is perceptible, whilst the examples of Renaissance scarcely appear, except as noted below.

The Guildhall School of Music is by Sir Horace Jones in good Italian Renaissance, whose details have been very carefully worked out with only slight projections, producing on the whole an effect much very more satisfactory than could be supposed from the drawing of it in the R.A. (No. 1655).

The Examination Hall for the Colleges of Surgeons and Physicians is a very plain edifice in the Italian style, erected at a cost of *c.* 21,000*l.*, and of which the Queen laid the first stone, its author being Mr. Salter. On each of the first and second front floors is an examination-room, 100 feet by 30 feet. There are also rooms for clinical and anatomical purposes.

Close to these examples of Renaissance comes Mr. Blomfield's Sion College in Late Perpendicular, described last year, and now completed.

The People's Palace, now being erected in the Mile End Road, from the designs of Mr. E. R. Robson, deserves a special notice. Its design, alluded to in our last, has been revised on account of the cost, and, although classed by me amongst the Renaissance as partaking more largely of the outlines and details of that style than of any other, is modelled to a large extent on earlier forms, or, as described by the architect, "Neo Greek (Byzantine) embracing the dome and the circular arch." The main façade shows a large dome in centre, with a very effective external loggia following the sweep of the dome. A tall tower, more of the minaret than of our western forms, on each side serves to lift up, as it were, the whole composition. Its plan presents a central hall, 130 feet long by 75 feet wide (7 feet wider than Westminster Hall), covered by a circular roof in one span, boldly ribbed, moulded, and with an oval recess for an orchestra if required. On one side of the hall are rooms, the gift of the Drapers' Company, for technical instruction, on the other a large lecture hall, of about the size of the Prince's Hall, Piccadilly (also by Mr. Robson), together with refreshment rooms, &c. At each end of the central hall is a large circular one, that to the south being "for social use," and the other for library and reading room, the gift of Mr. D. Edwardes. On a storey beneath will be rooms for dining, school of cookery, &c., and round the

western side of the library will be a gigantic conservatory and winter garden. A splendid swimming-bath (the gift of Lord Rosebery), gymnasium, &c., will complete this great building, a contract for the central portion of which has been accepted for 25,000*l.* The first stone was laid by the Prince and Princess of Wales during the summer.

Aberystwith.—It has been resolved to rebuild the University on the old site, according to the designs of Mr. J. P. Seddon, the architect to the former building, who will retain the outer shell but dispense with the interior rooms, throw two floors into one, and form a series of large class-rooms, with a central hall, museum, library, laboratories, &c. The building, thus ingeniously reconstructed, will be quite as picturesque as before.

Bradford.—The cost of four schools in course of erection here has been published:—1st, at Fairweather Green, by Mr. E. P. Peterson, in "Domestic Gothic," for 1,003 children, the cost being 8*l.* 8*s.* 0½*d.* per head for building and furnishing; 2nd, in Drummond Road, also by Mr. Peterson, "Gothic," for 1,178 children, at 9*l.* 8*s.* 5½*d.* The plan is that of a central hall, with eight class-rooms round it; 3rd, Thornton Lane, by Mr. Hargreaves, in "a plain type of Queen Anne style," for 810 children, at 9*l.* 3*s.* 2*d.* per head. The assembly hall is 87 feet by 44 feet; 4th, at Great Horton, for 1,230 children. The assembly hall is 88 feet by 45 feet, with twelve class-rooms round it. The design is the Queen Anne style, and the architects are Messrs. Barker and Ellis, and the cost 9*l.* 9*s.* 3*d.*

Cambridge.—Another addition to Girton College is being made by Mr. Waterhouse, R.A., viz., twenty-seven sets of rooms for as many lady students, the new part having a frontage of 240 feet with a high entrance tower and archway. There are three lecture or reading rooms also. The whole in red brick and terra-cotta.

Cheltenham Grammar School.—The design, by Mr. H. Hall, for the new building in the High Street, has been selected by Mr. Joseph Clarke, as assessor, from seventy-eight sets of drawings sent in competition. The centre block contains an assembly hall, with open-timbered roof, for 280 persons. The class-rooms, laboratory, dining-rooms, &c., are in the rear. The elevation is a very quiet but effective one "in the style of the sixteenth century" (the date of the foundation of the school).

Dunfermline.—The High School, for 500 boys and girls (Messrs. Holme and Mercer, architects), in the Scotch Baronial

style, with bell tower rising from the ground—is a very effective composition. The whole teaching will be in class-rooms.

Dundee.—The new buildings for University College (Messrs. Ireland and Maclaren, architects), is a plain edifice "classic in design," and contains a quantitative laboratory, 50 feet by 30 feet, for 32 students, a lecture-room for 170, with professor's laboratory, balance-room, museum, &c. The vitiated air from the lecture-room, and the noxious gases from the students' working tables, &c., are conveyed by tubes into an exhaust flue in the roof. All the principal rooms are on the ground floor, the laboratories and lecture-rooms rising prominently above the rest.

Dunstable Grammar School is by Mr. E. R. Robson, in the "style prevalent in England during the latter portion of the fifteenth century." The portion about to be built will be for 200 boys, 20 of whom will be boarders. The hall is to be 52 feet by 28 feet, with a bay window in centre, and a lofty open-timbered roof and lantern "founded on that at Eltham Hall.' The two class-rooms can be added to the hall on special occasions. Each is 22 feet by 20 feet, for 40 boys. Library 20 feet by 20 feet, and dining-room 35 feet by 21 feet. The kitchen is octagonal, with a lantern for light and ventilation. The warming is chiefly by open fireplaces.

Edinburgh.—The University Buildings, South Bridge, are to have the east front completed by a dome, from the design of Mr. Rowan Anderson, somewhat as originally designed by Adams, but on a much larger scale, the diameter of the drum being 40 feet, and of the dome 30 feet, and the total height 80 feet from the top of the present structure.

Egham.—The College built, for 250 female students, by the munificence of Mr. Holloway, at a total cost of about 600,000*l.*, is perhaps the most remarkable, both for its size and for the costly thoroughness with which it has been carried out, of any new educational edifice in the Kingdom. It is designed by Mr. Crossland in the Renaissance style, with conical-roofed, circular angle turrets to the wings; it occupies a space of 500 feet by 350 feet, and is four storeys high, with attics in addition. Each student has a study and bed-room, &c. There are nearly 1,000 rooms in all.

Harrow.—A building containing six large class-rooms, on two storeys, and a museum on the upper floor, top-lighted, and with

external staircase, has been added to the school; Mr. B. Champneys being the architect. The staircase and a large projecting gallery, leading out of the museum, give a very picturesque effect to the elevation.

Limpsfield.—A large building, having a frontage of 250 feet, is being erected for the Church Missionary Children's Home, to contain 120 children (boys and girls). The dining hall is 70 feet by 30, over the kitchen offices. The class-rooms, &c., are on the ground storey; the chapel (over dining hall) and dormitories are on the first floor, and other dormitories, nursery and invalid rooms on the second; the servants' rooms on the third. There is a detached hospital for infectious diseases. A high tower in the rear contains the main staircase, and supports a large tank. The best feature in the design ("fourteenth century Gothic") is the mass of chapel and dining hall which are in the rear. The contract is 31,000*l.*, and the architect Mr. J. Norton.

Liverpool.—The University College has received an addition of chemical laboratories from the designs of Mr. Waterhouse, R.A., at a cost of *c.* 16,000*l.* The style adopted is "a free treatment of Early round arched Gothic." The practical theatre is apsidal, 48 feet by 42, with a preparation-room, 20 feet by 19, attached to it. Each student has 4 feet of bench length. There is a sulphuretted hydrogen room, 20 feet by 14, with storage rooms, &c., and the various accessories for the Professors, &c., complete. On the upper storey is a lecture-room, over the dining-room, seating 212 students if with desks, or 260 in the ordinary way. There are also class-rooms, &c. All are heated by warm, fresh air, cleansed by passing through water, and rising through vertical flues in the thickness of the walls. The chemical flues and vitiated air are drawn *down* to the base of an extracting shaft somewhat as described in the Liverpool Homœopathic Hospital.

Oxford.—As usual our ancient Universities are quite keeping pace in their additional buildings with any of the most commercial modern towns. The new building in High Street for Examinations were shown in the R.A., No. 1562, and is one of the most effective of Mr. Jackson's work in the Transitional style in which he has done so much. His other works at Trinity and Corpus Colleges, noticed in our last, are completed.

Peterborough.—The design by Mr. Naylor for the Cathedral Grammar School for 40 boarders and 150 day boys, was selected in a limited competition. It is a pleasing design, in the Perpendi-

cular style, the centre marked by a square tower with angle turret, and the large schoolroom brought forward effectively as one wing. The cost *c.* 8,500*l.*

Competitions.—Very few competitions in the subjoined list have been conducted without reference being made to a professional architect as assessor. But there are too many others of less importance in which this proper course has not been taken. The most important competition during the year has been that at Birmingham, carried on as described in the last year's "Companion," under the direction of Mr. Waterhouse, R.A., who has filled his very exceptional position with great credit to himself, and his award, giving the preference to the design submitted by Messrs. Aston Webb and Ingress Bell has met with universal approval. This design has been described by an able critic as being picturesque without eccentricity, and thoroughly municipal in character. "The general effect is Gothic, but in detail it is Transitional." It ought to be recorded that the second and fifth designs selected by the assessor were by Birmingham architects, and were of great merit.

Fulham.—The competition for the Vestry Hall has been one of the most unsatisfactory on record. Mr. Currey was appointed as assessor, and selected a design by Messrs. Newman and Newman, but the vestry refused to accept his award, and selected twelve of the candidates for a second competition, in which, naturally, gentlemen premiated by Mr. Currey refused to enter. A design by Mr. George Edwards was selected by the vestry, and he has been appointed architect.

West Hartlepool.—Mr. Waterhouse, R.A., was assessor in a competition for new public offices, and selected the design by Mr. Knill Freeman, who has been appointed as architect accordingly.

Hartwood, Glasgow.—The design sent in competition by Messrs. Bruce and Hay for the new Lunatic Asylum for 1,000 patients, was selected by Mr. Carrick, the city architect, as being the most worthy, and it has been accepted accordingly. The estimate is *c.* 127,000*l.*

Liverpool Cathedral.—The designs by Mr. Emerson, Mr. Brooks, and Messrs. Bodley and Garner have been submitted to Mr. Ewan Christian by the Cathedral Committee.

Londonderry.—In the competition for the St. Colomb R. C. Temperance Hall, Mr. Thos. Drew, the referee, selected a design by Messrs. Croom and Toye, "as a work of exceptional merit."

It was unanimously adopted by the Committee; the probable expense being about 8,000*l.*

Merthyr Tydvil.—Mr. E. A. Johnson has been selected, in a competition with fourteen other competitors, as the architect to the Town Hall which it is proposed to erect at a cost of *c.* 12,000*l.*

Plymouth.—A competition took place for a Lunatic Asylum for 200 patients between architects resident within 20 miles of the town. The assessor was Mr. Howell, one of the most competent men who could have been selected, and he decided in favour of Mr. L. J. Hodge, whose estimate was 35,000*l.* But the justices ignored this decision in favour of an Italian design by Messrs. Hine and Odgers, who had been placed third by the assessor.

Birmingham.—A monument has been erected in St. Philip's Churchyard to the late Colonel Burnaby; but the talents of the architect, Mr. Chatwin, have been expended in producing an obelisk, 50 feet high, in Portland stone.

At *Derby* a bronze statue, 9 feet high, of the late Mr. Bass, by Mr. Boehm, R.A., has been erected on a pedestal designed by Mr. Edis.

Dublin.—The memorial to Cardinal McCabe is of a more important character, and was the outcome of a limited competition in which Mr. Drew was assessor, and Mr. Ashlin the successful architect. The design is in the form of a small apsidal chapel, Romanesque in style, and about 19 feet in length internally, with transepts. Open arcades take the place of walls throughout, and the whole composition is very pleasing. The chapel covers a recumbent figure of the Cardinal by Mr. Farrel, R.H.A.

At *Edinburgh* the old Market Cross, noted in the last year's "Companion," has been completed. The opportunity of erecting a Market Cross at *Grantham* has also been afforded. But, in place of erecting some memorial of the old town, it was decided to have a *granite obelisk* "with a finely-tooled face," 28 feet high. And it was further actually determined to copy the obelisk erected in Bridge Street, Blackfriars, London, to the memory of Alderman Waithman. An architect was employed, but I forbear to give his name.

Huntingdon.—A very elegant memorial in the form of a drinking fountain, octagonal in form, and surmounted by an ogee richly-carved canopy, has been erected (Mr. Edis, architect) to the memory of the late Earl of Sandwich, in "a picturesque rendering of English Renaissance."

Lichfield.—The west front has been completed by the filling in of a reserved niche with a statue of the Queen, executed by H.R.H. the Princess Louise.

London.—For the proposed ornamentation of Blackfriars Bridge, as described in last year's "Companion," sketch models were sent in by Mr. Armstead, R.A., Mr. Boehm, R.A., Mr. Birch, A.R.A., and Mr. Thorneycroft, A.R.A., and the Committee of the Corporation recommended that bronze statues of Richard I, Edwards I and III, and Henry V, should be executed by the several sculptors at a cost of 7,500*l.* for each statue. This, however, was opposed, and the whole scheme has been abandoned.

New Law Courts.—The memorial to the late Mr. G. E. Street, R.A., was unveiled in the spring by the Lord Chancellor, who spoke at some length of the ability and industry of the architect, and stated that "he found beauty and fitness in almost every part of the structure." The main subject is a figure of Mr. Street seated, and with a stylobate enriched with bas-reliefs, under a highly ornamental arched canopy. The sculpture by Mr. Armistead, R.A., and the architecture by Mr. Blomfield.

Manchester.—A memorial to the late Bishop Fraser, a design by Mr. Crowther, is nearly completed. It will be placed in a chapel to be expressly prepared for it in the south side of the chancel aisle, and will take the form of an altar tomb enriched with canopy work, niches and figures in alabaster, surmounted by a recumbent figure of the Bishop, in marble, to be carved by Mr. Forsyth.

Another monument of much the same character, also by Mr. Crowther, is nearly completed to the memory of Mr. Birley, M.P., the sculptors being Messrs. Earp.

Tavistock.—A colossal statue by Mr. Boehm, R.A., has been erected to the memory of Sir Francis Drake, at the cost of the Duke of Bedford. It stands on a pedestal, whereon are sculptured scenes from the life of Sir Francis.

The Colonies and India.—The Exhibition Building has been rendered much more architectural in internal effect than before, by the several small departments throughout being parted off from the main avenues by regular lines of open screens. In addition to the generally good effect thus produced, these screens have afforded an opportunity of showing some extremely beautiful pierced and carved woodwork of various styles and mode of carving, many of them being admirable studies.

The photographs exhibited in the several departments give a very fair idea, no doubt, of the general state of architecture in the Colonies. The great province of the Dominion of Canada has been so long and so closely connected with the parent country that it might be almost taken for granted that architecture in the two countries would take much the same lines. Accordingly, we find that the churches in Canada are chiefly designed in different phases of the Gothic style, the places of education in various styles from Gothic to Renaissance, and the public buildings chiefly Renaissance, although with such well-known exceptions as the Houses of Parliament at Ottawa. But the same rule applies to those portions of Greater Britain less closely connected with us in point of distance; their works executed present no great difference from those executed in the parent country some ten or twelve years since, modified to some extent by climatic differences. Thus, as an example, in one frame from Auckland, twelve Church of England churches were in the Gothic style, as was one Nonconformist; whilst two other Nonconformists were Italian in design, and something like this proportion is followed in most other cases.

Again, as to *Educational* Buildings, Sydney University, Victoria University, Central School and State Schools, Adelaide Model School, and many others are Gothic in design, whereas the greater part of the other public buildings, the banks, and large private or commercial houses, are Renaissance. Many of them are of extremely good design. In one essential respect, however, there appears to be a difference between the work in the New Country and the Old, viz., that in the former the new Transitional style between the late Gothic and the Renaissance, so common now in England, call it as you may Jacobean, "Elizabethan," Queen Anne, has made little progress in the Colonies. The modifications shown in the photographs and drawings are chiefly in respect of the heat by the use of deep shady arcades and galleries.

Many of the buildings are of high merit, and may vie, in point of beauty as well as size, with buildings of a similar class in the parent country. One example only I can quote of an entire abandonment of English design, viz., in our newest colony, North Borneo, where the Government offices (Mr. W. Kidner, architect) erected in brick, cemented over, present a series of deep arcades, but of no particular style or beauty.

India.—Here the case presents a very different aspect from

that of any of the Colonies, and in it we come directly in presence of numberless native structures of all kinds, many of whose details are of exquisite beauty, the products of various races, conquering and conquered, each having some special form of art. Two separate courses were open to us: the one to act as the Greek and Roman, the Byzantine, Norman, and Saracen, who took their art with them, as they did their religion, and so have left traces, very precious to the antiquary, by which we can read, as in a book, the history of their presence in the land; the other, to ignore our own art as Lord Napier and others would have us do, and take for our models the native works, Hindoo or Saracenic, or Mogul, as the case might be, and thus emulate the practice of the French, who have erected their cathedral and their grand church of Our Lady of Africa at Algiers in the style of the people whom they conquered, and whose religion they abhor. But there is a third, a sort of intermediate course, viz., to take our architecture as a groundwork and engraft upon it something in general form or detail which should mark the difference, or to reverse this, taking for the groundwork one of the many national styles. We may call either of these, by way of distinction, the Anglo-Indian.

I have now before me a long list of buildings erected in India within the last few years by different architects (all British), and I find that nearly every church and two-thirds of the public buildings, hospitals, and places of education are Gothic of various periods, a very few Renaissance, some few Anglo-Indian, and a few bad adaptations of native styles, most of these latter being by officers of the Royal Engineers. It is much to be regretted that these gentlemen who have done such admirable work in other ways should be placed in positions for which their special education affords them scarcely any training, a few lectures at Chatham, &c., appearing to be considered by the Government as sufficient.

One of the most important of recent works is the Bombay Station of the Great India Peninsula Railway, "one of the largest railway stations in the world," and certainly the largest modern work in India. The architect is Mr. F. W. Stevens, and the style "Gothic." It forms three sides of an oblong, enclosing a garden, on to which the refreshment-rooms, &c., look. The dimensions are large, the hall and booking-office being 82 feet by 76 feet, the refreshment-rooms 74 feet by 52 feet and 47 feet by 24 feet. The local blue stone is the chief material, but

marble from Canara and elsewhere, Aberdeen granite, and other durable materials have been largely employed.

Of the churches I may notice the Allahabad Carrington Church, which will probably be in the future the cathedral for the North-west Provinces. It is designed by Mr. W. Emerson, and has a large nave, with narrow aisles or passages only, transepts, apsidal chancel with ambulatory, a central and two western towers in early Gothic, and will seat 1,000 persons. The Rangoon Cathedral, by Mr. Chisholm, will be apsidal and aisleless church with transept, and with deep arcades outside, the general character being distinctly Gothic, of an Early English type. Of the Anglo-Indian style (Mahommedan Gothicized), we may notice the Allahabad University and the Hospital Bhownuggar, designed also by Mr. Emerson, and the post and telegraph offices by Mr. Chisholm—a very bold design, with very deep arcades, which have a very fine effect—and the Royal Sailors' Home at Bombay, by Mr. Stevens. In the above-named hospital the wards are surrounded by verandahs, about 12 feet wide.

Many other works of note have been erected by Mr. Chisholm (Government architect, Madras), Mr. Stevens, Mr. Emerson, &c., some of which will be found described in "Maclean's Guide to Bombay." Others in the "Transactions of the Royal Institute of Architects," 1875-6, 1882-3, 1884-5.

Restoration and Rebuilding of Buckfast Abbey.—The Benedictines have rebuilt the Cistercian Abbey on its old foundations, "as nearly as can be conjectured," as a reproduction of its former state, the style being Transitional Norman. The architect is Mr. Walter. The Abbot's tower (fifteenth century) was restored some time since and a new chapel built. "When completed, the buildings will form a quadrangle, the principal side being formed by the Abbey Church."

Colchester.—A restoration of an ancient building to its ancient purposes has been effected under Mr. Butterfield's direction at St. Helen's Chapel, attached to St. John's Priory, and long used for secular purposes. It will be used for occasional services and for a chapter-house for the clergy of the rural deanery.

The fine ruins of *Dunstanborough Castle*, Northumberland, are being carefully repaired under the direction of Mr. C. H. Fowler.

Edinburgh.—The proposed works at the Castle are of great importance, although not very extensive.

The small apsidal chapel of St. Margaret's (? A.D. 1093) the interior of which was restored some time since, is to be thoroughly repaired and to be restored, also to its original state, so far as can be ascertained. The Argyll Tower, the prison of the two Argylls in 1661 and 1685, is to be restored to its primitive form, as is the Old Parliament Hall, now used as a hospital for the garrison, all at the expense of Mr. W. Nelson under the direction of Mr. H. J. Blanc.

A clever reproduction of portions of Old Edinburgh, following the examples of "Old London" at South Kensington and the Piedmontese Castle at the Turin Exhibition, has been carried out in connection with the Edinburgh Exhibition by Mr. Sydney Mitchell. The entrances are under a reproduction of the Nether Bow Port (1606), demolished 1764, and the Royal Porch (1490–1753) to Holyrood Abbey.

Exeter.—Works for the rebuilding of the cloisters are proceeding under the direction of Mr. Pearson, R.A.

Glasgow.—The old University buildings (seventeenth century) have been carefully taken down and portions been removed to similar positions in the new buildings on Gilmae Hill, built in the Scotch domestic Baronial style (Mr. Thomson, architect).

London.—The works at Westminster Hall (*vide* last year's "Companion") are being carried out under the direction of Mr. Pearson, R.A. *St. Bartholomew's Church, Smithfield.*—The factory building which covered all the apsidal end of the church above the level of the aisle arches has been bought by subscription, and the intruding part cleared away and the Norman Triforium is now being continued so as to complete the apse, the lower portion of which was rebuilt in 1866 under the direction of Messrs. Hayter Lewis and W. Slater. It will form a composition very much like that of the apse of Norwich Cathedral. The chief part of the work is being executed at the expense of the patron of the living, Mr. Aston Webb being the architect. In pulling down the end wall numerous very interesting capitals, tracery, &c., of the ancient work were found imbedded in it, and will be re-used in the new work wherever practicable.

Peterborough.—The tower of the Cathedral is completed with the exception of the angle turrets. Some fragments of Saxon work have been found during the excavations. The architect, Mr. Pearson, is also about to rebuild the choir of the Abbey Church, *Shrewsbury*, an important work, destroyed at the Disso-

lution, and now replaced by "a wall run up between the two western piers which supported the central tower."

Waltham.—A restoration, very important in regard to the value, as apart from the size of the building, is that of the Eleanor Cross. Fortunately, the lower portion of the original (1291) stonework and the three effigies are pronounced be "in tolerably good preservation," and need not be interfered with. The architect in charge is Mr. Ponting.

Destruction.—Very narrow was the chance which saved the historical Charterhouse from undergoing the fate of so many other old buildings, and it has been for the present preserved. St. Paul's School has disappeared. It was the architectural offspring of Mr. George Smith, and certainly could lay no claim to antiquity but, whatever its defects, it gave a scale to the Cathedral and was in harmony with its architecture. *Carington House*, Whitehall, a well-known brick building by Sir W. Chambers, has been pulled down to widen the street. It was not ornamental outside but contained some very interesting specimens of architectural decoration.

Linlithgow.—The building dating probably from the end of the fifteenth century, well known as the Mint, but once the abode of the Knights of St. John (Hospitallers) of Jerusalem, has just been destroyed after having long been in a fearfully neglected state. It comprised two courts communicating by an archway. The chapel seems to have been destroyed long since, but the great hall on the first floor remained and contained a remarkably fine fireplace and one of the few Scotch open timbered roofs. A square tower, also, a familiar object from the railway, was well preserved, and was five storeys high with gabled roof and projecting windows.

Oxford.—There are few persons who will not regret the removal of the gateway at Magdalen College, built in 1843 by the elder Pugin. As one of the few specimens of his style it deserved a better fate.

Stonehenge.—This, probably the most remarkable piece of antiquity in the kingdom, appears to be in a state which calls for great attention, as it is stated to be undergoing daily injury at the hands of its great number of visitors. Details to this effect were given at the recent meeting of the Wiltshire Archæological Society's discoveries.

Excavations.—The first to be noted under this head is a very singular one, viz., that of the monumental figures of the Atkins

family recently discovered under Clapham Church (St. Paul's) all well preserved. They are finely carved and now form a noble monument in the north transept. Sir Richard (died in 1689) and Lady Rebecca are recumbent. But there is a seated one of their son Henry, who died in 1677, and who appears in a Roman dress. The carving of this is the finest of the whole.

Deerhurst.—The Saxon building is now found on closer examination to have been a chapel, with a nave and chancel about 40 feet in total length, the chancel arch being a fine example of Saxon. Many other portions are in good preservation, owing to a house having been built round the chapel in the sixteenth century.

Government Buildings.—A considerable number of these, chiefly for Post Offices, have been carried out in various towns.

Bradford.—The new Post Office is in the "Italian style," by Mr. H. Tanner, of Her Majesty's Office of Works for the Northern District. It is of large size, having a frontage of 300 feet, and is built of stone. On the ground floor the public office is 60 feet by 29, and the private box department 32 feet by 21. The sorting is to be carried out in the rear in a room 155 feet in length, and the telegraph work on the first floor.

Knutsford.—The new Post Office was designed by Mr. Owen of Manchester, "in an old English character, of a type to be found in Chester and throughout the county." The office is 32 feet by 17, the entrance (at the angle) being emphasized by an octagonal turret *c.* 60 feet high.

Leicester.—The new Post Office is designed by Mr. Tanner, of Her Majesty's Office of Works, and built of brick, with stone dressings, "with pointed gables and turrets, with a tower in the centre."

Newcastle-under-Lyne.—The Post Office has been erected from drawings prepared by Messrs. Chapman and Snape on the basis of a sketch plan furnished from headquarters, setting forth the requirements of the Department. "The style is that of the period of Queen Anne," carried out in red brick and stone.

Stourbridge.—The new Post Office in High Street, "in the Italian Renaissance style," was designed by Mr. Robinson, carried out in red brick and terra-cotta. The office is 22 feet by 19, the sorting room in the rear 30 feet by 19, and the telegraph instrument room, on the first floor, 22 feet by 19.

Truro.—Mr. Trevail is the architect of the new Post Office,

three storeys high, and "Classic in design," the lower part being built of granite and the upper part of stone. The public office is *c.* 27 feet by 21, and the sorting office 54 feet by 25. On the first floor are postmaster's office, letter carriers' rooms 25 feet square, and other offices, and on the second floor the telegraph department.

York.—The Probate Registry Office has been erected in stone from the designs, "in the Early English style," of Mr. Tanner, of Her Majesty's Office of Works.

Various. Railways.—The new station (Thorpe) at *Norwich*, erected in red brick and stone, is now opened, and the design (Renaissance) does great credit to the engineer, Mr. J. Wilson, C.E., and his architectural assistant, Mr. Ashbee. The elevation, with the exception of such details as broken gables, &c. (which seem to be considered as necessary portions of modern Transitional work), is very pleasing.

At *Bradford* the new Station and Hotel in Kirkgate are being erected from the designs of Mr. Trubshaw, architect to the Midland Railway Company. They will have a frontage of 150 feet. The buildings will be "of a modified Italian Renaissance, with Mansard roofs broken up by pedimented windows."

Foreign.

France.—A new basement storey is being constructed under the "Salles des Caryatides" in the Louvre, and in the progress of the works a discovery has been made of some remains of the palace of Philippe Auguste, consisting of the vaults, &c., which formed the kitchens and cellars. The capitals of the columns supporting the vaulting are described as being "Late Romanesque."

An important competition has taken place, viz., for the proposed building in the Champ de Mars for the International Exhibition of 1889. There were 107 designs sent, one of the conditions being that an iron tower, 300 mètres high, should be included in each design. M. Alphaud has been appointed to prepare probationary plans utilizing the most salient points in the three premiated designs of Messrs. Dutest, Eiffel, and Fornig.

Vienna.—An imposing monument to Admiral Tegethoff has been erected in the Prater-stern. It is a marble column 60 or 70 feet high, standing on a high square base of polished granite,

adorned with bronze bas-reliefs, and with two allegorical groups; the whole designed by Kundman. On the top of all, as inaccessible as our Nelson in Trafalgar Square, stands a statue, 11 feet high, of the gallant sailor.

Italy.—At *Milan*, competitive designs are required for a new west front to the cathedral, ten to fifteen of the designs being selected for a second competition. The present front is not a very homogeneous composition, but when one remembers the proposals for its replacement, already put forth and shown by the great wooden models in the adjoining palace, one feels rather an alarm at the prospect.

Rome, St. John Lateran.—The apse of this grand Basilica not affording sufficient space for the modern uses of the Roman Catholic services, it was determined to replace it at a distance of 65 feet from its old position. This involved the removal and replacement of the well-known mosaic, dating from the end of the thirteenth century, and, considering how little of the old work was left by Borromini, one trembled at the idea of this. The rebuilding was incomplete and the mosaic covered up when the author was in Rome in May last, but it is now stated that the central figure of Our Lord has been renewed, the rest of the mosaic having been preserved.

Civita Lavinia (*Lanuvium*).—Sir J. Savile Lumley has given to the British Museum the fine head and forepart of a horse lately found during the excavations carried on at Sir J. S. Lumley's expense by Mr. R. P. Pullan.

Egypt, Alexandria.—The rebuilding of the most important part of this city after its destruction by its vile rabble, is being carried out on a surprisingly grand scale in the Renaissance style. Alexandria will soon be, to a stranger, little more associated with Egypt, so far as its buildings go, than would be a new quarter of Paris. Nor does there appear to be, in the glaring white houses lining its new wide streets, any attempt to adapt the Renaissance style to the exigencies of the climate of Egypt.

Egypt.—The excavations at Naukratis, carried on for the Egypt Exploration Fund by Mr. Petrie, assisted by Mr. F. L. Griffith and Mr. E. A. Gardner, have been discontinued. To Biblical scholars these must yield in interest to the discovery by Mr. Petrie of Tahpanhes, the Greek Daphnæ, now Tell Defenneh, on which site he has lighted upon the ruins of a royal palace; the very one recorded in the Book of Jeremiah, to which were brought

with him the fugitive daughters of Zedekiah, *c.* B.C. 585, and where they were hospitably received by the Pharoah, Ua-ab-Ra (the Greek Apries, and the Hebrew Hophra) of the twenty-sixth dynasty. The building was constructed by Psammetichus, *c.* 665, and is described as being much in appearance like Rochester Castle. It has sixteen chambers on each floor with enormously thick walls, and stands in the centre of a square courtyard, the whole enclosed by a walled area *c.* 2,000 feet by 1,000 feet, its walls being 50 feet thick. A large number of chambers have been found containing Greek vases, armour, &c., still more curiously have been found the kitchen and butler's pantry with their utensils.

Susa.—The French have carried on excavations here for a considerable time, and a large collection of the antiquities found have been sent to the Louvre. Amongst the most interesting, architecturally, is a bas-relief in coloured enamel, about 38 feet long and 12 feet high, found under the palace of Artaxerxes Mnemon. It represents twelve soldiers of the royal guard, each *c.* 4 feet 6 inches high, in profile. The faces, hands, and feet are black. Another frieze, of the same large dimensions, of enamelled earthenware, adorned with lions in bas-relief, comes from the palace of Darius Hystaspes, and numerous other remains of the same kind, together with a double-headed capital, 16 feet high and 13 feet wide have been found. The above are the most extensive remains of such decorations found since those described by Victor Place at Khorsabad.

Palestine.—An excavation in Jerusalem has resulted in the discovery, by Dr. Merrill and Mr. Schick, the zealous local agents to the Palestine Exploration Fund, of what is, to all appearance, a portion of the second wall, the course of which, if it can be ascertained, will go far to settle the vexed question of the authenticity of the site of the Holy Sepulchre. The wall starts from a point close to the Tower of David, and has been, at present, traced for a length of about 130 feet.

Extensive remains of Roman pavements of very fine design and materials are being unearthed near the city. At the Mosque El Aksa Mr. Schick has obtained leave to clean off some of the plaster and paint with which the great columns are covered, and it seems now clear that they are the broken remains of the shafts which Procopius describes as having been used in the great Basilica built by Justinian.

America.—The September Journal of the Royal Geographical

Society contains an interesting account of researches made at Quirigua and Copan in Central America by Mr. A. P. Maudslay, who has taken casts of the more important sculptures, copies of which are in the Archæological Museum at Cambridge. The structures throughout are of a pyramidal form (in steps), and were, in his belief, chiefly the foundation platforms, not of temples, but of houses and palaces. He believes that these towns, together with Palenque, Tikal, &c., were ruined and abandoned *before* the Spaniards' discovery of America in 1492.

Taking now the history of recent excavations for the last few years generally, I may say that, whilst foreign governments have been active, our own has well nigh abandoned the field in which we once played so distinguished a part, as witness, Assyria, Ephesus, Halicarnassus, Lycia, &c., and that whilst two societies for the exploration of Egypt and Palestine respectively have done good work with very limited means, derived from private sources only, the Germans can point to their great finds at Pergamos (on ground originally offered to the trustees of the British Museum), the Austrians to theirs at Djolbasche, and the French at Susa. We must go to Berlin, Vienna, and Paris to study what is new in the world of art. With pride, too, the Germans may point to their work at Olympia, whose excavated remains are left *in situ*, untouched except by needful works of repair, the sculptures only, where unable to bear exposure to the weather, being sheltered in a neighbouring building.

It is, however, unfortunate that this excellent example can seldom be followed, as to adopt it, *e.g.*, at Pergamos, or Djolbasche, or Ephesus would be simply to leave the sculptures for the lime-kiln.

T. Hayter Lewis.

THE ART EXHIBITIONS OF THE YEAR.

WHAT may be called the retrospective Exhibitions of the year 1885-6 were of much interest; they included the usual Winter Exhibition of the Royal Academy, a collection of the works of Sir John Millais at the Grosvenor Gallery, and one of those of Mr. Holman Hunt at the Fine Art Society. The first of these was remarkable for the fine assemblage of drawings by Turner, and for a number of pictures by Wright of Derby, the painter of "The Experiment with the Air Pump," in the National Gallery. "The Orrery," a work of the same class, showed to almost equal advantage Wright's power in composition, and skill in rendering complicated effects of light. But Wright was also a good portrait painter and landscape artist. Mr. Bemrose of Derby sent an elegant figure of Sterne's "Maria," and a bright portrait of the artist's sister, "Nancy;" Lord Houghton, "Edwin" from Beattie's Minstrel; and Mr. Arkwright a group of the children of the famous Richard Arkwright. The principal contributors of the Turner drawings were Professor Ruskin, Mr. Brocklebank, Mr. J. Edward Taylor, and Mr. Fawkes, of Farnley. Amongst Mr. Ruskin's drawings were the splendid "Lake and Town of Geneva" (1810), two of the "Richmondshire" series ("Heysham" and "Eggleston Abbey") and "The Splugen Pass," a masterpiece of his latest time. Mr. Taylor's drawings were remarkable for their perfect condition, and included two of the fine late drawings (about 1840), and two of the England and Wales series. The Farnley drawings possessed a special interest, as they were done by Turner for his friend, Mr. Fawkes, and have never been out of the possession of the family. Special interest also attached to eight drawings made for Sir Walter Scott, lent by Mr. Brocklebank. Most of the drawings have been engraved in "Southern Coast," "England and Wales," Whitaker's "History of Richmondshire," and other works, and altogether worthily displayed the incomparable genius of this great artist. As usual, Reynolds was largely represented. Mrs. Cooper sent a faded but very sweet "Nelly O'Brien," the Earl of Fife a vivacious "Mrs. Abington as Roxalana," Lord Monson a charming "Mrs. Gallwey," carrying her little boy on her back. Amongst the full lengths were "Mrs. Hale as Euphrosyne," "Lady Broughton" holding a portcrayon, and "Jane, Duchess

of Gordon," with her coronet in her hand. Hoppner's portrait of "Mrs. Lascelles," lent by the Earl of Harewood, and the Duke of Wellington's "Lady Anne Culling Smith and her Children," did much to raise the reputation of this painter. Gainsborough was not so well represented as usual, but Lord Rothschild's "Mrs. Sheridan" was of the highest class. The best Romney was the head of an unknown lady belonging to Mr. Alfred de Rothschild. The genius of Constable was splendidly shown by two large masterpieces. These were Mr. Henry Vaughan's "Haywain," and Mr. Huth's "Stratford Mill." The owner of the former has since presented it to the National Gallery. Between these two magnificent Constables was hung a fine sea-piece by Turner, "The Pilot-boat," belonging to Mr. Fawkes. Wilkie's "Chelsea Pensioners," belonging to the Duke of Wellington, was the most important of the other works by British artists.

The collection of foreign old masters was poorer than usual. Among the best pictures of the Dutch school were a splendid De Hooghe, lent by the Queen, the Duke of Wellington's Jan Steen, called "An Interior," three Van Ostades belonging to the Queen, the Duke of Wellington, and Mr. A. de Rothschild. The National Gallery of Ireland owns a fine example of Van Uden with figures by Teniers, and a silvery "View on the Amstel," by G. Durigny, belonging to Mr. J. Rohde, called attention to a little-known painter. Among several interesting pictures belonging to Mr. T. Humphry Ward was a fresh and characteristic example of Elsheimer, "The Betrayal of Christ." Lord Heytesbury sent a good copy or replica of Van Eyck's "St. Francis receiving the Stigmata." The original is at Turin. In the great room was hung a magnificent picture by Vandyck, "The Duchess of Arenberg and Child," belonging to Mr. Fawkes. The principal contributor of Italian pictures was the Earl of Wemyss. Specially worthy of mention were a lovely Botticelli, "Virgin and Child," a noble "Virgin and Child," ascribed to Mantegna, Titian's "San Sebastian," and a splendid portrait of a Venetian Senator by Tintoretto. Lord Monson sent his well-known "Holy Family," formerly ascribed to Leonardo da Vinci. Among the small but genuine works by Italian artists were Colonel Stirling's panels of "St. Roch and St. Sebastian," by Cima da Conegliano, Lord Berwick's "Nativity," by Carpaccio, Lord Wantage's "Sebastian and St. Jerome," by Perugino, Mr. Gibb's "St. Augustine," by Ambrogio

Borgognone, and Mr. Somerville's example of Girolamo dai Libri.

The only important picture of the Spanish School was the Duke of Wellington's "Waterseller," by Velazquez, and Mr. Pritchard's "Claude" was the finest of the French.

The Exhibition at the Grosvenor of over 150 of Sir John Millais's pictures, coming so soon after a smaller gathering of them at the Fine Art Society was an astonishing testimony to his popularity and his genius. Every year of his career from 1848 to 1885 was illustrated by one or more pictures, from the portrait of Mr. Hugh Fenn, executed at the age of nineteen, to the magnificent "Gladstone" of his fifty-seventh year. The distance between the young Pre-Raphaelite brother and the middle-aged rival of Sir Joshua and Velazquez is too long for us to traverse. We can only mention a few of the works which seem to us to be as milestones in the journey. "Isabella" (1840), "The Huguenot" (1852), "Autumn Leaves" (1856), "The Vale of Rest" (1859), "The First Sermon" (1863), "Esther" (1865), "The Minuet" (1866), "Vanessa" (1868), "Miss Nina Lehmann" (1869), "The Boyhood of Raleigh" (1870), "Chill October" (1871), "Hearts are Trumps" (1872), "Mrs. Bischoffsheim" (1873), "The North-West Passage" (1874), "A Yeoman of the Guard" (1877), "The Right Hon. W. E. Gladstone" (1879), "Sweetest eyes were ever seen" (1881), "Little Miss Muffet" (1884). This is a short epitome of the wonderful panorama of nearly forty years' work, which confirmed his reputation as one of the greatest artists of his country. Scarcely less interest, if not so general an enthusiasm, was excited by the comparatively few pictures which have employed the life of Mr. Holman Hunt, the only one of the Pre-Raphaelites who has remained faithful to his early principles. The point to which both he and Millais worked with identical aims was most clearly seen by comparing Hunt's "Family of Converted Britons succouring Christian Priests in their Escape from the Druids," with Millais's "Christ in the House of his Parents." Perhaps no artist ever established so great a reputation by so few pictures as Mr. Holman Hunt. Here were all, or nearly all, his great works in the little room of the Fine Art Society, which was by no means crowded with them. "The Light of the World," "Isabella and the Basil Pot," "The Scapegoat," with small replicas of "The Finding of our Saviour in the Temple," and "Afterglow in Egypt," all pictures to be mentioned whenever

the history of English art in the nineteenth century is written. Here also were "The Awakened Conscience," "The Festival of St. Swithin," "Strayed Sheep," "The Shadow of the Cross" (now called "The Shadow of Death"), and other remarkable specimens of the artist's unique imagination and masterly workmanship. Mr. Holman Hunt's rate of production seems to have been about one picture a year.

In surveying the exhibition of current art we find that we have not, this year any more than last, to chronicle any great achievement or new departure in art. The older generation, good or bad, have gone on in their old grooves, and the progress of the younger has not been remarkable. Much good work has been done, but it has been little more than "work," the interest of which has been mainly professional. The general average of execution has been good, just good enough to contrast severely with the ordinary level of a few years since, but it has lacked inspiration. The most discouraging symptom of the exhibitions of the year taken altogether is the poverty of thought and imagination—the lack even of interest in the subject chosen. To put the emotional requirements of pictorial art at the lowest, it is necessary for the artist to have interest in his subject; so much of the spiritual is required to make art live—to make art at all; but an enormous number of pictures, and technically good pictures also, are produced annually, which evidently do not in the least represent anything which the artist cared for in itself. He may have painted them out of *bravura*, or as an experiment, or (and this is too often the case) because he did not know what else in the world to paint. No doubt modern theories of art being independent of its subject, the enthusiasm in mere *technique*, the craze for "impressions," good, bad, or indifferent, and the realism which rejects discrimination may account for much of this. More of it may be put down to the fact that hundreds take to art as a profession without the least vocation. But whatever the cause, the result does not tend to make exhibitions amusing. Yet they seem to increase both in size and number, from which we may conclude that there is a large demand for art, however commonplace, provided the execution reaches a certain level.

The Royal Academy was generally considered one of the most uninteresting on record, and this was certainly the case if we regard the pictures sent by artists from whom the public expected much. Sir Frederick Leighton had no picture of more importance

than a decorative painting for the ceiling in the music-room of an American millionaire—Mr. Marquand of New York. In such a composition the President could not fail to show his sense of elegance and beauty, but it was scarcely a work to fulfil the expectations of his admirers. This was, however, accomplished by two pieces of statuary in bronze, one of which was a life-size figure called "The Sluggard," and a statuette of a girl frightened by a frog. From some points of view the former was very fine, and, in spite of the too great prominence given to the anatomy and some other defects, may be regarded as worthy of the sculptor of the "Athlete struggling with a Python." The statuette was even more satisfactory. To the exhibition Sir John Millais sent nothing but a portrait of Mr. Barlow, the engraver, and this, though vigorous and lifelike, was almost grotesque. Mr. Alma-Tadema is seldom or never disappointing, and size in his case has comparatively little to do with the importance of his pictures. His two little paintings "An Apodyterium" and "Rose of all the Roses" were good examples of his really wonderful skill in execution and fertility of invention. Mr. Hook is another of those painters who never fail us. In his "Salmon Pool" he showed how truly he can present the distinctive features of his native country. While other painters have ransacked the world to find some new inspiration for their art, he has stayed at home, content to study the familiar beauty of its seashores and rivers, with their rich green sea and seaweed-covered rocks, their verdant meadows and tangled hedgerows. No one has dared to paint the verdure of England so truly and strongly, or caught with such skill the lift of the transparent waves upon a rocky coast. Mr. Orchardson is the most original colourist—the most spirited and refined of our figure painters. His largest picture was a sequel to the celebrated "Mariage de Convenance" of two years since. The old man is left alone; the portrait of his beautiful young wife is all that is left of her in his splendid mansion. He has finished his solitary meal, and is seated in dejection before the fire. The subject needed all the skill of the painter to render it attractive, and this was shown even more plainly in a smaller picture, called "A Tender Chord." The girl and her expression were charming, and the piano (a wonderful instrument of the "Empire" period rich in gold and bronze and rosewood) was a wonder of imitative art; but the combined lightness and solidity of the handling and its exquisite harmony of pearly

tones, beautifully broken, showed a nearer approach to his technical ideal than he has perhaps ever reached before. Mr. Briton Rivière is an artist of much more uncertain power, but by his "Rispah" he reminded us again that he is gifted with true imagination. The large canvas is mainly occupied with the bare summit of rugged rock, on which Rispah, a wild, rigid, and dishevelled figure lies, her back supported by a stage of solid timber, of which the feet are only seen. At her side curls the smoke of a fire, behind her jackals yelp in a semicircle, on a lower slope lions are prowling. In imagination there was little to rival it except Mr. Watts's terrible design of "The Death of Cain," in which the vigour and grandeur of the conception showed in pathetic contrast with the feebleness of the execution. Yet although Mr. Watts's physical powers are growing unequal to the task of painting, it is scarcely possible that his work can ever sink to the level of that of some of his colleagues. We are glad to hear that Mr. Herbert had announced his intention to exhibit no more. Whether the scales have fallen from his eyes on contemplation of his own works, or he has yielded to the solicitation of friends, he is equally to be congratulated. As to the public —that is a matter less certain. They will lose a good deal of amusement, and the space occupied by Mr. Herbert may be filled by artists who will not yield them even that. There are several Academicians quite equal to perform this feat. Mr. Calderon's "Ruth and Naomi" was marked by grace and tenderness; and of the other Academicians the portrait painters Holl and Ouless merit most notice, the former's "Duke of Cleveland" and "The late Earl of Chichester" were astonishing in their forcible representation of old age, and amongst the latter's portraits, all of which were marked by subtle discrimination of character and fine, if unobtrusive colour, should at least be mentioned those of "Mr. George Scharf," the Director of the Portrait Gallery, and "Dr. Burdon Sanderson."

The great event of the year was the first appearance of Mr. Burne Jones, whose unsolicited election as an Associate was one of those acts of justice and grace which will go far to cover many sins on the part of the Academy. It is to be hoped that that they will crown it by making him a full member at the earliest possible date. All may not appreciate Mr. Burne Jones's pictures, and many who do so may think that his abilities as a draughtsman, and even as a colourist, have been overrated by his warmest admirers, but no one can doubt his originality or the

strength of his imagination. For a quarter of a century he has pursued a persistent ideal which exercises an almost magical fascination over many. There is a spiritual power in his creations to which the art of no other living English artist can lay claim, and, to put the matter on the lowest level, the Academy cannot afford to do without him any longer. His picture was called "The Depths of the Sea," and the subject was of a mermaid bearing a man on her shoulders down to the submarine halls. The subject did not admit of the splendid scale of colour which we see in some of Mr. Burne Jones's more celebrated pictures, like "Laus Veneris" and "Chant d'Amour," both of which were sold in Mr. Graham's collection at Christie's this year, and realised 2,677*l.* 10*s.* and 3,150 guineas respectively. It might have been called a harmony in bronze, with its sombre but clear browns and greens. The type of the mermaid differs from that usual in his works, and approaches more to the ideal of Leonardo da Vinci. Her expression is one of elfish victory and desire, and this, contrasted with the unconscious face of her victim already (unknown to her) dead, strikes a strong chord of terror and pathos. Mr. Burne Jones may be said to have succeeded in realising his idea, but the notion of a mermaid descending tail foremost is not happy, and the tail itself, which is like the body of a salmon spliced on to the trunk of a woman, justly excited a good deal of mirth. Perhaps the picture in the Exhibition which most nearly approached "The Depths of the Sea" in imaginative force was "The Magic Circle," by Mr. J. W. Waterhouse, one of the newly elected Associates. A young and handsome sorceress, with a weird expression of great determination, is describing with her wand a circle in the sand. Fire flickers in its track, strange smoke ascends from the cauldron by the witch's side, snakes coil about the witch's neck, and ravens attend her. Her costume is picturesque, a strange mixture of the artist's fancy, belonging to no particular age or time, and the colouring of the work, with its prevailing tones of blue warmed with ashy yellow and lurid red, is in harmony with its spirit. A somewhat vague sense of the "uncanny" is the general result of the picture, not sufficient perhaps for so elaborate a performance, and scarcely worthy of the painter of "Consulting the Oracle" and "St. Eulalia." A sensation of a very different kind was produced by the portraits of the young American artist Mr. John Sargent. The group of "The Three Miss Vickers" was perhaps more discussed than any other of the year. A

marvel of broad and vigorous handling and of freshness in composition and expression, it showed better than any other picture the aims of perhaps the most important section of the younger artists, who, without going to the length of the extreme impressionists, aim at instant and vivid representation, swiftness, and certainty of execution, paint only what they see, and paint it just as they see it. Of these, Mr. Sargent is the strongest, and his sincerity does not prevent him from stamping all his work with a style and refinement which are quite his own.

Although there have now been cited all, or nearly all, the pictures by which the Royal Academy Exhibition of 1886 will be specially remembered, there were of course a number of others whose merit was considerable. Mr. Stacey Marks, with his quiet humour and excellent painting, Mr. Marcus Stone with his graceful sentiment and sweet execution, Mr. Faed with his genuine pathos, Mr. Pettie with his dash and his rich colour were all there, if not in great force. The fine face and distinguished presence of "A Daughter of the Lagoon," quite justified Mr. Fildes in making a life-size picture of a portrait study. In his large canvas of "Cassandra," Mr. Solomon J. Solomon grappled gallantly with a great subject, and earned something more than a "success of esteem." The reappearance of Mr. Logsdail with two large pictures of Venetian life was welcome, although he seemed more interested in his *technique* than in his subjects.

He had, however, evidently been very seriously at work. In "Preparing for the Procession of St. John the Baptist" an interior full of figures and innumerable detail, there is no part which is not painted with force and care. The anxiety of the elders and the humours of the children dressed up in processional finery, the pots and the pans, the artificial flowers, and the tinsel, all receive a too impartial attention. There is no rest in the colour nor focus for the interest. A "Venetian al Fresco" had much the same defects, but it also had the same qualities, and there is no young artist of whom more may be expected. Mr. J. R. Reid is another strong artist who scarcely knows what to do with his power. His "Shipwreck," a scene in a fishing village, is full of fresh observation and fine colour. One or more survivors from the wreck are being carried across the wet sand through groups of women and children. It was one of the cleverest pictures of the year, but it failed to make so deep an impression as the subject and the skill deserved. Nor can

Mr. Seymour Lucas, the new Associate, be said to have had a great success with his large composition of "Peter the Great at Deptford." There was much boldness in the design and plenty of character in the figures, but it failed to excite interest in proportion to the care bestowed upon it. The Honourable John Collier may be said to have followed up the success of his "Circe" last year by a large composition of "Mœnads" hunting in a wood. One has a pair of leopards in a leash, another holds aloft two serpents in her hands, another has cast her cone-tipped thyrsus at a kid. Pictures by Mr. H. Woods, Mr. Boughton, Mr. Burgess, Mr. Dollman, Mr. W. H. Margetson, Mr. Knighton Warren, Mr. J. Watson, Mr. Loudan, and Miss Henrietta Rae formed part of a host of minor successes which we have no space to count. In landscape these were more numerous. Besides representative works by well-known men like Messrs. Davis, Peter Graham, Vicat Cole, Leader, Colin Hunter, Oakes, A. Parsons, Alfred Hunt, E. Parton, Henry Moore, the Wyllies, F. Walton, J. White, and Arthur Lemon, there were many fresh and beautiful scenes of land and sea. We can only mention the names of Messrs. W. L. Picknell, Byron Cooper, A. M. Lindström, Lionel Smythe, T. B. W. Forster, Reginald Aspinwall, and Hugh Wilkinson. Amongst the foreign artists who did much to relieve the monotony of our native productions were M.M. Van Haanen and Blaas, Favretto and Paoletti, Carolus-Duran and Aublet, Fantin and Verlat, Normann and Rossi.

In sculpture there was somewhat of a falling off in comparison with recent years; but, besides the President's contributions already mentioned, and a great deal of admirable portrait sculpture, there were a few pieces which drew special notice; amongst these were "The Enchanted Chair," by Mr. Alfred Gilbert; "A Sower," by Mr. Hamo Thornycroft; "Folly," a bronze statuette by Mr. E. Onslow Ford; a bronze statuette by Mr. Arthur Atkinson; two fine reliefs, "Homer" and "Socrates," by Mr. Harry Bates, and "Summer," a statue, by Mr. George Lawson.

If the Grosvenor Gallery was more interesting than the Academy it was to a great extent the fault of the Academicians themselves, several of whom sent pictures equal, if not superior, to those which represented them at Burlington House. Mr. Alma-Tadema, for instance, sent a portrait of a lady dressed in green satin and creamy lace relieved against an architectural

background of a subdued golden tone, which, if not so interesting as his *genre* pictures, was a masterpiece in another line. His portraits before have often been striking, but this was unusually fine as a picture, and full of pleasant character. He also sent a charming little idyll in colour called "A Foregone Conclusion." Mr. Orchardson's "Master Baby," though not so important or interesting in subject as many of his pictures, was yet one of the finest he has painted. Mr. Burne Jones did not desert the Grosvenor for his new friends at the Academy, but sent three pictures to Bond Street, one of which was exceptionally fine in both sentiment and colour.

This was a beautiful single figure called "Flamma Vestalis," of which every touch tends to perfect a lovely scheme of colour. The flesh tinged with the richer lines of nature is exquisite in its tender warmth, and in perfect harmony with the lovely weavings of purple and blue and red of her drapery, and the golden tones of the landscape background. In "The Morning of the Resurrection" Mr. Burne Jones returned to his more favourite type, and a more sombre scale of colour. The timid tender figure of the anxious Magdalen, clad in a prune-coloured robe, half bent, full of hope and awe, is represented as turning round from the empty tomb to see (but not yet to recognise) her risen master. One of the most decided successes of the Grosvenor, indeed, of the year was the Hon. John Collier's portrait of "Miss Nettie Huxley." Another portrait still more clever, perhaps, but not so elegant, was Mr. Shannon's likeness of "Miss Annie A. Beebe," one of the best and perhaps the most powerful piece of painting in the gallery. It belongs to the school of Carolus-Duran, vigorous, dashing with life in every touch. Mr. John Sargent has much the same aim, and sent a very dexterous "Study." Mr. W. B. Richmond as usual sent a good many pictures. The most admired of his portraits was one of "Miss Burne Jones," seated in a landscape and dressed in a plain white gown with a blue sash, but in those of Mrs. Warren de la Rue, Cicely Wormald, and Master Morse, and, indeed, some half dozen more, his refined draughtmanship and sympathy with character were evident. He also sent a striking figure of "Hermes" putting on his "fair winged shoes." For strength of character and solid workmanship two portraits by Mr. Frank Holl were conspicuous. They represented "W. Nicholson, Esq.," and the "Rev. E. Warre, D.D." Mr. Watts' figure of "Hope," like the "Death of Cain" at Burlington

House, and an allegorical figure called "The Souls' Prism," showed signs of a failing hand, but it was worthy of his imagination and full of pathos. Hope, blindfold and deaf, is seated upon the globe and crooning with ear close to the lute to catch the faint sound of its one unbroken string. The picture forms one of a series illustrating "a great moral conception of human life and conditions," which the artist has announced his intention to present to the nation. Among other good figure-paintings were Mr. Waterhouse's "Flower Market," Mr. Calderon's "Œnone," Mr. Boughton's "Incident from the Career of William the Testy, Governor of New Amsterdam," Mr. Clausen's "Holiday Time," and Mr. Poynter's "Outward Bound."

This exhibition was rich in landscape. Signor Costa sent the most important work which he has as yet contributed to this gallery. It is called "Frate Francisco and Frate Sole," and represents the Saint of Assisi saluting the sun as it rises over Monte Subasio. Mr. Alfred Parson's "In a Cider Country," and Mr. J. W. North's unnamed landscape with a gravel bank and wild vegetation, were large and sincere attempts to represent nature. Mr. Henry Moore sent a glowing "Sunset after Storm," and Mr. Hennessey a very delicately toned view on the French coast called "Shrimpers," full of moist air and low light and living figures. Mr. Fabey's "Filby Broad, Norfolk," was notable for its striking effect of sky and water. Mr. Edgar Barclay sent two or three pictures full of poetry and glowing with sweet colour, the best of which was perhaps that called "Swans." Mr. W. H. Bartlett, Mr. Arthur Lemon, Mr. Browning, Mr. E. Parton, Mr. Menpes, Mr. Matthew Hale, and Mr. Britten were others who helped to make this exhibition interesting; and a young artist, Mr. J. P. Beadle, made a most successful *debût* with a picture of "Her Majesty's Life Guards."

One of the surprises of the year was the election of Mr. Whistler as President of the Society of British Artists. He and his followers had already done much to improve the qualities of the exhibitions of this Society. Among a mass of uninteresting work have appeared gleams of fresh and sincere art by Messrs. Menpes, Pennington, Starr, Dannat, Stott, Leslie Thompson, Picknell, Gotch, and others. The Institute of Painters in Oil Colours, notwithstanding its 787 pictures, preserved a good average of merit. "The Amanuensis" was a particularly charming picture by the American artist Mr. F. D. Millet; and besides some admirable examples of the skill of such tried men

as Messrs. Thomas Collier, Clausen, Charles Green, Frank Dadd, Fulleylove, Elgood, Hacker, Seymour Lucas, Staniland, Wimperis and Orrock, there was some delightfully fresh and sincere work by Messrs. Tuke, La Thangue, Melton Fisher, Caffieri, and other rising men. The Institute of Painters in Water Colours was still larger and more satisfactory, and with few exceptions the best contributions were sent by the same artists. The most notable of these exceptions were the President, Sir J. D. Linton, Mr. E. J. Gregory, Mr. Abbey, and Mr. Hine. Other artists who distinguished themselves were Messrs. Langley, R. H. Carter, Alfred Parsons, and R. Macbeth. The Royal Society of Painters in Water Colours held their usual Winter and Summer Exhibitions. "Smyrna Bazaar," by Mr. Henry Wallis, "Fringe of the Common," by Charles Gregory, and landscapes by Mr. Poynter, were some of the most notable drawings, but there is little of the unexpected in the Exhibitions of this Society, the high quality of which is assured by such names as Alfred Hunt, Albert Goodwin, Clara Montalba, &c. In the Summer Exhibition Mr. Smallfield's "Colonel Newcome in the Charterhouse," Mr. Wainwright's "Imperial Drawing," Sir John Gilbert's "Enchanted Forest," Mr. H. S. Mark's "The Pen," Mr. Albert Moore's "Myrtle," and Mr. Beavis's "Carting Seaweed," may be mentioned, although the reputation of the Society was generally well supported by the "whole staff." In landscape Mr. Hunt and Mr. Matthew Hale, Mr. Powell and Mr. Henry Moore, Mr. Boyce and Mr. Thorne Waite, were seen to advantage.

The Exhibitions confined to the works of one artist were unusually numerous. The best were Mr. Whistler's "Brown and Gold" (perhaps the best nosegay he has yet culled from the choice garden of his dainty genius), Mrs. Allingham's, Mr. Albert Goodwin's, and Mr. Herbert Marshall's, and Mr. Orrock's. These were held at the Fine Art Society's and at Messrs. Dowdeswell's. The sensational works of Mr. Van Beers at the Salon Parisien, and some pictures of Parisian Life by M. Tissot at Messrs. Tooth's attracted more attention than they deserved, and the popularity of Mr. Long's Exhibition in Bond Street seemed to vie with that of the "Doré Gallery" opposite.

The Exhibitions mainly devoted to foreign artists were as popular and more numerous than ever. At Messrs. Wallis's Gallery were to be seen fine examples of Cerot, Holmberg, Meissonier, Joanawitz, Seiler, Gérome, and Heffner, at Messrs.

Tooth's (besides Sir John Millais's charming little boy "Blowing Bubbles"), de Blaas, Bochman, Pasini and Deutsch; at Messrs. McLean's, Jacquet, Van Haanen, Costa and Ciardi. To these must be added the Hanover Gallery, and Messrs. Obach's in Cockspur Street, the newest but not the least interesting. At the Goupil Gallery was shown a fine collection of Dutch water-colours, some of the best pictures from the French Salon, and other choice little collections.

The Exhibition of the Society of Painter Etchers was held at Derby, and contained a special collection of the works of Mr. Seymour Haden. The Society of Female Artists, the Dudley, and the Nineteenth Century Art Society, held their usual Exhibitions; and so did Messrs. Agnew, who collected a splendid show of water-colours, conspicuous for the masterpiece of De Wint and Turner's "Carnarvon Castle."

To exhaust all the Exhibitions of pictures becomes yearly a more difficult task, but this survey must not be concluded without a notice of the New English Art Club, a small band of artists joined together by a certain similarity in their aims and methods. Spontaneity and sincerity seem to be their watchwords. As perfect liberty of self-expression is inconsistent with any shibboleth it is not surprising to find little uniformity in their work. Principles which bring such different artists as W. H. Bartlett and John Sargent, Alfred Parson and Jacomb-Hood, Solomon J. Solomon and H. S. Tuke, together under one banner must be broad. That all or most of them have studied in France, and have learnt the "values" is evident. That they think a picture should be a painting and not a coloured drawing, and that they prefer nature to Academic convention, are also matters of no dispute. To learn more about their "platform" we must wait, and whether the force of their ideas is sufficiently strong to make them the leaders of a really vital movement in art remains to be seen.

COSMO MONKHOUSE.

SCIENCE OF THE YEAR 1885–1886.

Astronomy.

The New Star in Andromeda.—The star which shone forth in August, 1885, in the heart of the great nebulæ in Andromeda, has continued to attract the attention of observers. As was expected, the so-called new star gradually declined in brilliancy. It will be remembered that when first observed the star was estimated as between the 7th and 8th magnitudes. On September 9th it was still of the 8th magnitude; but by September 20 it had sunk to the 9th; by September 27 to the 10th; October 7, to the 11th; October 27th to the 12th; November 20 to the 13th; December 10 to the 14th magnitude; and since then it has still further diminished. Doubtless there has always been a faint star, probably of about the 18th magnitude, where the "Nova" shone out; and we have in this case merely a repetition, with differences of detail only, of what happened in the case of the new star in the Northern Crown, in 1866.

It is worthy of notice how the evidence obtained from the three so-called new stars, which have been observed with the spectroscope, illustrates the complexity and variety of the sidereal system. For we have—

1st. The new star in Corona, where (as appeared on examining the charts) a star of the 10th magnitude had always been. There was no nebulosity round the changing star. Its place was unusually far from the Milky Way, on or near which all former "new stars" had appeared. The stranger showed by its spectrum that its sudden increase of lustre was due to the presence of enormous quantities of glowing gas, hydrogen chiefly, outshining the portion of the star's mass whose spectrum was continuous (as from glowing solid or liquid matter). The new star faded gradually to its normal lustre, the spectrum losing its bright lines.

2ndly. The new star in Cygnus (November, 1872), where no star had been recorded. This orb behaved at first like the Nova in Corona. But as it faded in lustre, the bright lines, indicating the presence of glowing gas, did not lose their relative brilliancy. It was the continuous spectrum which faded away. At last only the three bright lines remained which form the spectrum of the gaseous nebulæ. In the telescope the "Nova" had by

this time assumed the appearance of a small bluish-green planetary nebula. Doubtless in this case some change had taken place in the midst of one of these vast masses (perhaps one should rather say vast volumes) of glowing gas, which caused the nebula to acquire for a time the brightness of a 3rd magnitude star. Yet this planetary nebula had escaped the scrutiny of Sir W. Herschel, and afterwards of Sir John Herschel, who surveyed the whole heavens for nebulæ with a telescope one foot and a half in diameter.

3rdly. The new star in Andromeda, August, 1885, where a nebula but no star had before been recorded. In this case the star shone with a peculiar spectrum, continuous, but ending rather abruptly towards the red, which part of the spectrum was in fact wanting. This is the spectrum also of the great nebula itself.

It will hardly be believed that one or two astronomers—but chiefly those of the surveying class—still consider it possible that the new star was only optically connected with the nebula in the midst of which it appeared. Of course there is no reason why a new star should not shine out by some strange chance exactly on the line of sight to the heart of a much more remote star cloud, though of course the coincidence would be most remarkable. In this case, however, we not only have the exact resemblance between the spectra—each object, new star, and nebula having the same most peculiar spectrum—but we have the parallel case of the Cygnus new star appearing in a nebula, besides such cases as Eta Argûs, the marvellous southern variable in the midst of the great "keyhole nebula" in Argo, and the star which appeared in the midst of a stellar nebula in Scorpio, making the cluster look for awhile like a single blaze of light, and others.

The Nebula round the Pleiad Maia.—By a strange coincidence another piece of evidence, and one of a most decisive character, has been obtained respecting the close connection between the stars and the nebulæ. The brothers Henry, at Paris, after photographing many interesting star-fields, obtained a very effective photograph of the Pleiades. In this photograph, the result of one hour's exposure, a nebulous wisp was recognised as apparently clinging to the star Maia. The telescope used by MM. Henry showed no trace of the nebula. They made fresh photographs, including one which was the result of three hours' exposure; the nebula appeared in all. (It has since been detected telescopically, but as a very faint object, by M. Otto Struve, at

Pulkowa.) MM. Henry write thus respecting this interesting object, "the nebula twists partly round the star Maia, from which it appears to flow" (*d'où elle paraît s'échapper*). The same photograph shows the brightest portion of the nebula discovered by Tempel, which seems to flow or extend from the Pleiad Merope.

It would of course be unreasonable to imagine that two much more remote star clouds happen to be so situate outside our galaxy as not only to appear to be in the very midst of the Pleiades, but to extend precisely from two of the chief Pleiad brilliants. Hence, precisely as in nebulæ we have stars, so in star groups we have nebulous matter.

Photographic Survey of the Heavens.—The photographs of star-fields by the Brothers Henry are full of promise. They show stars down to the 14th and 15th magnitudes, beautifully defined.

Photographs of the Planets.—MM. Henry have shown that there is room also for much improvement in the way of photographing the planets. They have obtained photographs of Saturn, showing Cassini's division in the rings.

We much want photographs of the moon, on a new plan. Those by Draper, De la Rue, Rutherfurd, and Ellery are very beautiful and attractive. But they attempt to show too much. Parts of the moon need a much longer exposure than others, and when photographs with this longer exposure are taken, the brighter portions of the moon's surface are much over-exposed. We need photographs of the bright tracts, the crater regions, and the dark sea-floors taken separately, each with the amount of exposure suited to the brilliancy and recognised photographic effectiveness of its illumination.

Photographing Star Spectra.—A work has been inaugurated (through the generosity of Mrs. Draper, widow of the eminent American physicist, Dr. Henry Draper), which promises to be among the noblest contributions to our knowledge during the present century. It will be known to our readers that Dr. H. Draper and Mr. Huggins have both within the last ten years achieved successful results in photographing the spectra of individual stars, and also of portions of the Orion nebula. It is now proposed to photograph star-spectra by thousands and tens of thousands, and the work has already been commenced under the auspices of Professor Pickering, of Harvard College, Cambridge, U.S.

The whole of the heavens, from the north pole to the parallel

of 30° south of the equator, is to be surveyed. Each photograph will be exposed for about one hour, and will include a region 10° square. The telescope employed has an aperture of 8 inches, and a focal length of 44 inches. The object glass is covered by a prism, and the spectrum of each star in the region photographed will have a length of $\frac{2}{5}$ths of an inch, sufficient (with subsequent magnification in detailed study) to indicate the character of the spectra of stars from the 5th to the 8th magnitude. For the brighter stars the arrangements will be slightly modified.

Already by means of the five 15-inch telescope of that observatory, experiments have been made, with the object of representing the spectra of some typical stars upon a large scale. Spectra $2\frac{2}{5}$ inches in length have been obtained, in which much well-defined detail can be recognised. One most hopeful feature may be noted in the results thus far secured; there seems every reason to believe that by this photographic method better results may be obtained in determining the stellar motions of recession and approach than by the direct observations hitherto pursued.

Spectroscopic Measurements of Stellar Motions of Recession and Approach.—These observations have been continued at Greenwich during the past year; but the results can scarcely be considered successful. For instance, on July 23rd, 1885, the star α Pegasi was estimated by this method to be receding at the rate of 20·4 miles per second; on August 25th to be approaching at the rate of 7·3 miles per second; and to be receding on November 17th and December 15th at the respective rates of 28·6 and 5·7 miles per second. Similar discrepancies were recognised in the estimated motions of other stars in the direction of the line of sight.

Spectroscopic Measurement of the Rotation of Saturn's Rings.—On the other hand, comparing the motion of parts of the ring of Saturn near the outermost edge, the difference of motion between the eastern edge, which was moving towards the eye, and the western edge, which was moving from the eye, was estimated at 26·7 miles per second, the computed difference (that is to say the sum of the equal velocities in opposite directions, which is the algebraical difference of the numbers representing them) being 19·4 miles per second, a satisfactory agreement, considering the exceeding delicacy of the observation.

Spectroscopic Measurement of Jupiter's Rotation.—The same method applied to Jupiter's rotation, his equatorial zone being spectroscopically observed first on the east, and then on the

west, indicated a difference of 31·6 miles per second, the computed difference being 30·9 miles per second. This agreement is surprisingly close, in fact so close as to show that chance had a good deal to do with the result.

It is noteworthy, however, that theoretically we have in this way of observing Jupiter a method of determining the sun's distance. Suppose, for instance, that Jupiter's apparent diameter having been carefully determined, the spectroscopist obtained a difference of velocity of 31·6, indicating with the known rotation-period (9h. 56m.) a diameter of 89,000 miles. Then this measurement of an absolute length in the solar system indicates the scale of that system, and with it every absolute length therein, including the sun's distance.

Rotation of Mars.—The rotation of Mars has been freshly determined during the recent opposition of the planet; but it can hardly be said that any marked increase of accuracy has been obtained. Professor Bakhuysen, of Leyden, indeed claims to have obtained a mean result of the various estimates heretofore deduced, which he advances as an improvement on all of them. But he has only done this by modifying the observations of his predecessor, Professor Kaiser, from which, when due correction has been made for Kaiser's clerical errors (in counting 1700 and 1800 as leap years, &c.), results practically coincident with my own rotation period inevitably follow. This period, 24h. 37m. 22·7s., may be regarded as right within limits of error, which cannot be appreciably altered except by observations extending over many years.

Great Shower of Bielan Meteors.—The earth passed on November 27th, 1885, through the track of Biela's comet; and as in 1872, the last time but one when the passage occurred, not far from the time when the comet itself had crossed the earth's track, there was a remarkable display of meteors while the earth was traversing the comet's meteoric train. It will be remembered that in 1872, the connection between the Andromede November meteors (to be carefully distinguished from the Leonid meteors of November 13–14), was for the first time clearly made out. In the November number of the "St. Paul's Magazine," I called attention to the probability that in the last week of November there would be a display of Bielan meteors radiating from near the feet of Andromeda. Professor Alexander Herschel, and Mr. Greg, of the British Association Meteoric Committee, independently made similar announcements.

The shower took place in 1872, the wealth of falling stars being numerically marvellous; but few were conspicuous in size or brightness. In 1879, the next return of the comet, there was no remarkable display of Bielan meteors, but the brightness of the moon during the last week of November would have sufficed to prevent any except the highest falling stars from being seen. On November 27, 1885, however, the shower was very remarkable, and fortunately was well observed in many stations.

The first point to be noticed in connection with the display is the new evidence obtained respecting the connection between the Andromedes and Biela's comet. I find from the observations made by Colonel Tupman, with the express object of obtaining evidence on this point, that from the determination of the radiant point of the display, combined with an estimate of the velocity, based on the very imperfect evidence derived from the average intervals between the showers of 1872, 1877, and 1886, the inclination of the stream of meteors to the ecliptic comes out almost exactly the same as the inclination of Biela's comet; the eccentricity of the orbit is appreciably the same, the position of the perihelion close to that of the comet's perihelion. In fine, all the circumstances correspond, except, of course, the date of perihelion passage. The particular part of the comet's train of meteors, traversed by the earth last November, had of course some distance to travel before it came up to the place which at that moment was occupied by the comet's head, which had passed perihelion on October 31st. Probably the meteors traversed on November 27 came to perihelion about December 28th. It will be seen that in this consideration we have enough fully to account for such slight discrepancies as naturally appear between the meteor track determined (independently), without sufficient knowledge of the period of revolution, and the comet's track, known accurately because of many periodic revolutions between the time of first observation and the year 1866, when the comet was looked for in vain, and the sad thought had to be entertained that the comet had been dissipated and (as a comet) destroyed.

Other evidence of value was obtained last November. It was found that the meteors, though obviously radiating from the Andromedean region assigned in 1872, yet did not radiate from a point. Not only was there a tolerably large radiant area, but there seemed to be evidence of two overlapping areas. One

might almost imagine that the two comets, into which Biela's was divided in 1846, each had their train of meteoric attendants, producing two distinct showers of falling stars. The real lesson taught, however, by these observations was that although meteors enter our air retaining their direction of motion little changed, it yet may be so far changed by atmospheric resistance as to show a manifest deviation from true parallelism with the comet's track. In fact at Greenwich one of the Andromedes was observed to actually traverse a visibly curved path.

The recognition of these diversities in a system unquestionably pursuing parallel paths, and entering our atmosphere much less swiftly than most meteors (for the Andromedes overtake the earth, so that only the excess of their velocity over the earth's carries them on into the air) is a matter of considerable interest, as the next item shows.

Stationary Radiant Points.—Observations on falling stars have long since indicated systems (among the four or five hundred traversed each year by the earth) which seem to have nearly the same radiants. I noted about fifty such cases in a list of meteoric radiants sent to the Astronomical Society during my editorship of the *Monthly Notices*). Mr. Denning, however, a Bristol merchant, who has laudably devoted a good deal of time to observation of the heavens, believes that he has recognised something much more striking, viz. : meteoric radiants which remain absolutely fixed for several months in succession ! This, of course, could have but one interpretation. Imagine a person riding round a circular track during a slanting downpour of rain. If such a person noticed no difference whatever in the apparent direction of the shower throughout his whole circuit of the track, he must conclude that the velocity of rain-fall was such that his own rate of motion was too small, by comparison, to be appreciable. There is absolutely no escape from the conclusion, except the preposterous supposition that regularly, as the rider changed his direction, the falling rain changed *its* direction to correspond !

The case of the earth circuiting around her orbit, at the rate of 18½ miles per second, is similar to that of the rider, except that he crosses showers falling in multitudinous directions instead of being affected by one steady shower taking in the whole of the solar system. If a stream of meteors were observed coming month after month from exactly the same radiant point, and the resemblance of the meteors in appearance were such as to

confirm the belief that they belonged to one and the same stream, there could be no escape from the conclusion that those meteors must be travelling athwart that region of the solar system with velocities incomparably exceeding the velocity of the earth in her orbit. If the radiant without being exactly the same changed only by two or three degrees during those months, velocities very largely exceeding the earth's must be inferred.

But Mr. Denning unfortunately endeavours to combine confidence in stationary radiants, not exceeding two degrees in diameter, with equal confidence in estimates of meteoric velocities as by no means so great as such radiants could compel us to recognise. Unaware of the mathematical certainty against which he is contending he has recently asserted his confidence in both parts of his imagined discovery.

Luckily the observations made upon the Andromedes have sufficed to show even non-mathematicians the impossibility of observing such stationary radiants as Mr. Denning supposes he has recognised. If a stream of falling stars pouring upon the earth along parallel tracks shows during a few hours a radiant area which even a single observer finds to be four or five degrees long by two or three degrees broad, while no two observers precisely agree either as to its size or position, how utterly inadmissible is the idea that meteors entering the atmosphere during several months (in which time the earth changes her direction of motion largely), can appear to radiate from one and the same precise point on the celestial concave.

The real fact is that the determination of the spot from which a shower of meteors appears to radiate is a much more difficult task than the inexperienced imagine. The best observers, like Professor Herschel, Mr. Greg, &c., are precisely those who claim least exactitude for such observations. We may believe that the radiants of certain meteoric systems continue recognisable for several months in succession, and do not range in position over more than ten or twelve degrees. Even this requires us to recognise velocities much greater than those which had before been recognised among meteors—possibly even velocities ranging up to a hundred miles or so per second.

Meteoric Visitants from beyond our System.—Such a result compels us to admit, what had long before been held to be probable, that many of the meteor streams which cross our solar system come to it from out of interstellar space. The Andromedes

travel in an orbit not extending far beyond Jupiter's, the Leonids do not pass far beyond the orbit of Uranus, and the famous meteors of August 10—11, though they pass nearly twice as far out into space as Neptune's orbit, yet travel on a closed orbit around the sun. It is different with meteors which reach our solar system with velocities exceeding 26½ miles per second. They must necessarily have come from far beyond the sun's domain. That they continue as a recognisable shower, not only during a few months of any given year, but for several successive years, shows that the stream of meteors must be a very wide one—probably in fact thousands of milions of miles wide—for even according to O. Struve's estimate of the sun's velocity in interstellar space, the solar system advances 150 millions of miles per annum. And I have shown conclusive evidence that a velocity of 5 miles per second is probably very far short of the actual rate of our sun's advance. (The stellar proper motions indicate velocities averaging 40 or 50 miles per second).

Whence can such swiftly moving and such wide-spreading streams of meteors have started? Schiaparelli's theory, or rather guess, according to which meteor systems had originally been travelling in clouds, and as it were casually, through interstellar space, fails us in the presence of these meteor showers. We seem forced to the theory to which we had long before been drawn, by many lines of evidence, that meteors (and, therefore, comets) were originally expelled from the suns which people stellar space, from bodies like the giant planets which were formerly in the sun-like state, and even from bodies like our own earth which though at a much more distant time have also passed through the sun-like stage of planetary life.

M. Daubrée on Meteorites.—Very interesting in connection with this theory, are M. Daubrée's recently published statements in regard to meteorites, in the *Revue des Deux Mondes.* He shows that meteorites are analogous in structure to the silicate rocks which are found in deep regions of our own earth, and are left unmoved in all recent volcanic eruptions. Only such eruptions as in long past ages must have stirred the inmost depths of the earth could have expelled such bodies as now reach her from the outside,—including many which for quite independent reasons astronomers had learned to regard as originally expelled from her own interior. Speaking of external bodies, as the suns and those bodies once suns which are now the giant members of solar systems, M. Daubrée remarks that "Reason

combined with experiment, gives us clews to the formation of the stars of which—in meteorites—we possess fragments. Suppose silicon and the metals not originally combined with oxygen as they are now (in the earth), either because the different elements were not near enough together in the primordial mixture, or their temperature was not high enough to permit them to enter into combination. When oxygen comes into action it unites at first with the elements for which it has a predominant affinity, primarily silicon and magnesium, then iron and nickel; and if the gas is not in excess it leaves a residue composed of the less oxidable bodies. Iron and nickel would in that case be left in a free state, disseminated among the stony silicates. This is exactly what is observed in the meteorites; and it is also a fact which I have confirmed by experiment."

As it is certain that the conditions for this particular process do not exist in interstellar space, but only in the interior of large orbs so intensely heated as to be in the sun-like state, we have here what amounts in effect to demonstrative evidence that meteorites come from such orbs. But we also recognise in the tremendous eruptive energies which must be excited when such processes go on upon a large scale, and under such conditions as exist within the interior of suns, the force necessary for the occasional expulsion of bodies so formed, with velocities sufficing to carry them for ever away from their parent orb. The larger and more massive such an orb, the greater the velocities required for such absolute expulsion, but the greater also would be the expulsive energies available for the purpose.

On the whole it may be said that the eruptive theory of volcanic and meteoric generation, already practically demonstrated by astronomical evidence, has now been independently established by the admirable chemical and physical analyses and experiments carried out by M. Daubrée. Nor need the evident inability of the present volcanic forces of our own earth to accomplish the work of absolute ejection render the theory improbable in our eyes. For these forces are manifestly but puny compared with those which the earth possessed in her fiery youth. And they affect also only those surface regions where non-meteoric rocks are found. When the earth's volcanic powers, besides being the product of much greater heat, affected deeper regions, and so had a greater vertical range within which to generate expulsive power, the ejection of meteoric bodies with the velocity necessary for final expulsion may well have been

comparatively easy. As for stars or suns, though doubtless they required much greater expulsive energy, yet that they may well have possessed it, and that they possess it now, our own sun assures us, who has more than once been detected in the act of expelling bodies with velocities far exceeding what would be required for their absolute rejection.

Comets of the last Year.—The unusual spectacle, or I should rather say simply the visibility of four comets at the same time occurred in the late spring months of 1886. There was nothing specially interesting about any of the four. Fabry's comet (*d* 1885) and Barnard's comet (*e* 1885) were visible for a longer time than the average. Another comet discovered late in 1885, was not one of the four, having already begun its retreat from both the sun and the earth when first noticed.

It may be interesting to mention here that the total number of comets whose orbits have been computed by astronomers up to the present time is 306, of which twelve proved to be periodic, and have been re-observed more or less often at their calculated returns. In the last quarter of a century nearly 100 orbits have been computed.

Physics.

Velocity of Light.—Although the measurements of the velocity of light by MM. Newcomb and Michelson were really made in 1882, the results have only been recently published, and belong to the science of 1885–6. The method adopted has been Tizeau's, with certain improvements which experience has shown to be desirable. The final result obtained by Newcomb is $186{,}326 \pm 25$ miles per second. The final result obtained by Michelson is $186{,}322 \pm 37$ miles per second. If we take $20''{\cdot}492$ as the value of the constant of aberration, in other words if we take as the result of observation that when our earth is travelling at her mean velocity square to light-rays from a star, they appear owing to her motion to be inclined $20''{\cdot}492$ to their actual direction, it would follow that the earth's velocity bears to the velocity of light the ratio which the sine of $20''{\cdot}492$ bears to unity. Hence the earth's velocity can be calculated, if the velocity of light is known. Taking Newcomb's result we find that the earth's mean distance from the sun must be 92,959,200 miles to give the earth the mean velocity so deduced. If we take Michelson's result, the estimated distance of the sun will be about 2,000 miles less. These results are surprisingly close, and

justify great confidence in this method of measuring the sun's distance so far as it depends on the determination of the velocity of light. Unfortunately the aberration of light cannot be determined quite so accurately as the velocity with which light travels. To take such a value as 20″·492 is to assume that a star's position can be observationally determined to within $\frac{1}{1000}$th part of a second of arc. Now the attempts which have been made to determine the parallax of the fixed stars (in order to determine their distance) show that to estimate even the $\frac{1}{10}$th part of a second of arc is at present beyond the power of our telescopes. The nearest star, *a* Centauri, shows a parallactic displacement of nearly a second,—and this is the only star whose distance has been satisfactorily determined.

Hence at present we must regard the new measurements of the velocity of light as interesting in a physical sense; but not as throwing any new light on the problem of the sun's distance. Rather, we may take the measurement of the sun's distance by other methods, as enabling us, when combined with the new determination of the velocity of light, to assign the value of the constant of aberration much more precisely than we could by direct observation.

It is noteworthy how nearly the relation between velocity of light and the distance of the sun is expressed by saying that the sun's light when he is at his mean distance reaches us in 500 seconds, or $8\frac{1}{3}$ minutes. Light traverses the span of the earth's orbit in 1,000 seconds, and this is the greatest range of difference in time to be noted in the occurrence of eclipses of Jupiter's satellites, since his distance from us can only vary by the diameter of the earth's orbit.

Electrical Transmission of Force.—In July, M. Marcel Deprez reported to a commission appointed for the purpose, the results which have thus far rewarded his experiments on the transmission of force by means of electricity. The 38 men of science forming the commission unanimously approved the report. M. Deprez has obtained the following results:—With only one generator and one receiver, it is now possible to transport to a distance of about 35 miles a force (capable of being used for industrial purposes) of 52-horse power, with a yield of 45 per cent., without exceeding a current of 10 ampères. When the amount of force absorbed by the apparatus used to facilitate the recent experiments, but not required in the application to industrial purposes is added, the yield will be nearly 50 per cent.

The machines work regularly and continuously. The *maximum* electro-motive force is 6,290 volts. Before the construction of the Marcel Duprez apparatus the *maximum* force did not exceed 2,000 volts. This high tension appears to be obtained without causing any danger. M. Deprez estimates the probable cost of transmitting 50-horse power round a circular line of about 70 miles at rather less than 5,000*l*., an expense which would be greatly reduced if the machines were frequently constructed.

Utilisation of Underground Heat.—Possibly the recognition of the possibility of extending and improving methods for the transmission of force may give increased value hereafter to the study of supplies of force which are large enough indeed in quantity but limited locally and at present of no practical use. Among these may be mentioned the various suggestions which have been made for utilising direct solar action. The plans of Mouchez, Ericsson, and others are useless at present, but if garnered force could be transmitted to long distances they would come in usefully when our supplies of coal begin to run short. Mr. J. Starkie Gardner suggests that the undergound heat of the earth might be utilised in this way. The deepest artesian well in the world is being bored at Pesth, with the object of securing an unlimited supply of warm water for the city baths. It has already reached a depth of more than 3,000 feet. The present temperature of the water is 161° Fahrenheit, and the borings will be prosecuted till water of 178° is obtained. But a greater heat by far than this could be secured by underground boring, and if it could be converted by convenient practical methods into transmissible force and carried to great distances, a problem of the future, now scarcely considered, but which will one day look threatening, would find a solution.

Duration of a Lightning Flash.—Interesting experiments have been made recently on photograph by means of the lightning flash. It had been known that the intensity of the lightning flash is sufficient to give a photographic record though the illumination derived from any given part of the flash can last but a very minute fraction of a second. But in some of the recent lightning photographs, the duration of the total illumination has been indicated, and found to be far greater than has been commonly alleged.

Wheatstone measured the duration of the electric spark by means of a rapidly rotating disc marked with fine radial lines on a dark ground. He found that the lines always appeared sharply

defined when the rotating disc was rendered visible by the electric spark, showing that it did not rotate through any perceptible distance while the spark lasted. He inferred that the duration of a spark obtained from electricity of high tension is less than the $\frac{1}{10000}$th part of a second. It has been inferred (commonly Wheatstone is said to have proved) that a lightning flash lasts for a period which probably is not more than $\frac{1}{10000}$th and is certainly less than $\frac{1}{1000}$th part of a second.

But two photographs taken during a thunderstorm near Philadelphia, in October, 1885, by Mr. A. S. Barker, show that the lightning flashes by whose light (alone) they were severally taken, must have lasted much more than $\frac{1}{1000}$th of a second. For certain trees in the field of view, show manifest signs of movement during the exposure, and since the exposure was practically determined by the flash itself, photographic action beginning and ending with the flash, it follows that the flash lasted long enough for the storm-tossed branches of the trees to move through measurable distances. Probably the flash in each case lasted more than $\frac{1}{100}$th of a second.

This, however, is not so inconsistent with Wheatstone's result as it seems at first sight. From the duration of a thunder-peal, we can often infer that the remotest part of a lightning flash must have been several miles farther off than the nearer part, and the actual track of the flash (always far from straight) very much longer. Now supposing an electric spark 1 foot long to last $\frac{1}{10000}$th of a second, it would require only a flash 10,000 feet in length, to last $\frac{1}{100}$th of a second. This would correspond to less than two miles; and it is certain that many lightning flashes are much longer than this. A thunder-peal lasting ten seconds cannot be explained by an electric disturbance traversing a distance of less than about two miles, and certainly no electric disturbance ever travels in a straight line, while it is very seldom that such a disturbance travels directly towards or from the observer, these being the conditions necessary that the distance should be only two miles in the case considered.

If we suppose, as certain recent photographs of the lightning flash itself seem to suggest, that when the illumination has lasted $\frac{1}{100}$th of a second the flash has been at least 20 miles long, we get a velocity of 2,000 miles per second for the lightning; which is far less than the velocity with which electricity is communicated along stout copper wire.

It would be worth while for experiments to be made on the

following lines :—Let a rotating disc on Wheatstone's plan be set in front of the storm clouds, so as to be illuminated by the flash, and let it be photographed by that light. Let another camera be directed to the same sky, and let the same lightning flash be photographed. The study of one photograph would show how long the light lasted, the study of the other would give an idea of the range of the lightning flash in distance.

Resolution of the Elements.—Ever since the so-called elements air and water were resolved into their components, which we now call the elements nitrogen, oxygen, and hydrogen, while earth was found to be not only very varied in structure as is obvious, but formed of multitudinous elements, physicists have naturally felt doubtful whether any resolution of a substance into components can be regarded as final. Why should not oxygen, for instance, yield as air has done, to dissociative forces? and nitrogen? and hydrogen? More intense dissociative action may be required than our chemists or physicists can apply. But he would be bold, indeed, who should say that any one of our so-called elements is actually elementary.

The problem assumed a new aspect when spectral analysis afforded a new means of distinguishing one element from another. The mere fact that a substance like hydrogen or iron or calcium, when glowing with its own inherent light, is found to emit rays of different refrangibility, seems of itself to suggest a certain composite structure. Professor F. W. Clarke, now of Washington but then of Cincinnati, was the first perhaps to give definite expression to this idea, though in truth it is too obvious, in this merely suggestive form, to be worth raising the priority question over. At any rate the idea has been mooted, and has led to experimental investigations of considerable interest.

The following elements have been apparently obtained from the supposed element Didymium :—

Neodymium	By Welsbach	in 1885.
Praseodymium	,, ,,	
Zα	,, Lecoq de Boisbaudran	
Zβ	,,	in 1886.
Dα	,, Crookes ,,	

The evidence is not yet sufficient to show that Didymium is really a composite substance ; though in reality there can be no difficulty in believing that several of the so-called metallic elements, especially those which are found in small quantities and under unfavourable conditions, are compounds of two or more metallic substances. If we imagine the products of lead

mines tested by some method akin to spectroscopic analysis, which did not involve the separation of lead and silver, we can readily imagine that an alloy of these two metals might come to be regarded as a single metal elementary in constitution. The discovery that that particular substance was compound would not throw much light on the general question. The recent supposed recognition of an allotropic form of nitrogen by an English chemist requires confirmation.

Professor Balfour Stewart, in connection with this subject, has re-called attention quite recently to the idea thrown out by followers of Professor Clarke, that suns of Secchi's first order, like Sirius, Vega, and Altair, give evidence as to the compound nature of the so-called elements in the comparative simplicity of their spectra. In these stars, which we may justly regard as the very hottest "Where dissociation is greatest, we have," he says, "only a few prominent lines, these belonging to hydrogen, calcium, and magnesium." But this in reality proves nothing, except that hydrogen and the vapours of calcium and magnesium rise higher above the photospheres of those more massive and hotter suns than other vapours. In the spectrum of our own sun the absorption lines of gold are not discernible, and the lines of silver are very faint; yet we do not infer that these two metals are dissociated in the atmosphere of the sun.

Professor Stewart also repeats the old argument derived from the supposed coincidence of certain lines in the spectra of different metals. But the evidence here is not only not convincing, it is incorrect, most of the supposed coincidences are found not to be coincidences at all. Where there have been real coincidences the metals experimented on were impure.

New Elements.—The following new elements—so to call them provisionally—have been obtained, besides the five above-named compounds of Didymium (all in 1886):—

Name.	Source.	Discoverer.
Zγ	Terbia	Lécoq de Boisbaudran.
Germanium	Argyrodite	Winkler.
Austrium	,,	Linnemann.
Dysprosium	,,	Lecoq de Boisbaudran.
Sβ	Samarskite	Crookes.
Sδ	,,	,,
Gα	Gadolinite	,,
Gγ	,,	,,
Gδ	,,	,,
Gε	,,	,,
Gζ	,,	,,
Gη	,,	,,

Palæontological.

A Prehistoric British Vessel.—A few years ago an ancient wooden causeway was discovered in the neighbourhood of Brigg, in Lincolnshire. It was made of squared baulks of timber, 15 feet long, and 10 inches square, which had been fastened to the earth by pegs driven through holes in the ends. Now in the same region an old British vessel has been found, which presents features of considerable interest. It was cut out of a solid piece of wood, and measures 48 feet in length, 4 feet 4 inches in width, and 2 feet 9 inches in depth. Having been imbedded in a clayey soil, which excluded the air, it is in a remarkably good state of preservation.

By a strange turn of fortune this archæological treasure-trove is now in Chancery; question having been raised as to the right of property in it.

Meteorology.

A Far-travelling Storm.—At a meeting of the Meteorological Society on November 18th, 1885, a paper was read by Mr. Henry Harries, on the origin in the Pacific of a storm experienced in the British Isles during the second half of October, 1885. This was the first occasion on which daily tracings had been made of a storm on its way from the Pacific Ocean to Europe. Mr. Harries showed that a typhoon, which had originated near the Phillippine Islands on September 27th, passed over Japan and the Alentian Archipelago, and entered the United States October 10th. Crossing the Rocky Mountain range, it proceeded through the Northern States and Canada to Labrador and Davis Strait. In the Atlantic it was joined on the 18th by another disturbance which had come up from the Atlantic tropics, the junction of the two being followed by a cessation of progressive movement from the 19th to the 25th. During this period a severe gale which passed along the southern counties of England on the morning of the 24th was formed. Following in the wake of this storm the parent cyclone reached the French coast on the 27th, its advent being marked by violent gales and extensive floods over the whole of Western and Central Europe and Algeria. The disturbance then showed signs of exhaustion, till, on November 1st, it quietly dispersed over the Baltic, after accomplishing a journey of more than 16,000 miles in 36 days.

Geographical.

Disappearance of the Lake of Fire at Kirauea.—Early in the year one of the most remarkable volcanic outlets of the earth underwent a strange though not altogether unprecedented change. The Great Lake of Fire, Kirauea, in Hawaii, suddenly sank, and, in fact, disappeared ; nor has it yet returned. It has been truly said that the Hawaiian volcanoes, Mouna Loa and Kirauea, bring up more lava and dissipate more energy in the course of any given (long) period of time than any others of which we have knowledge. Their action is quiet, but has usually been continuous. These liquid lakes represent the summits of columns of liquid lava, extending probably to enormous depths below the sea-level. When great eruptions occur on the flanks of the mountains at lower levels these lakes are drained, and when the eruptions cease the lavas come up in them again to their former level. It is noteworthy, however, that, notwithstanding such irregular changes, the height of these liquid columns had until recently been steadily increasing, the level of Kirauea having risen more than 400 feet in the last sixty years.

Scarcely any phenomenon, then, more stupendous in reality (though quiet in appearance) has ever taken place than the subsidence of Lake Kirauea. It would seem to indicate some tremendous though deep-seated commotion, which has brought about, but on a far grander scale, a withdrawal of the lava from Kirauea such as eruptions within the same volcanic area have produced.

The Eruptions in New Zealand.—It is remarkable, and may perhaps not be a merely accidental coincidence, that while Hawaii has thus for awhile lost its most remarkable geological feature, an object of interest which had been as attractive as Niagara to all who came within ready reach of it, the Northern Island of New Zealand has been despoiled in like manner of the more beautiful and striking features which rendered Lakes Rotomahana and Rotorna a favourite region for voyagers to visit. The great volcanic disturbances which affected an area of about 60 square miles in the lake region of northern New Zealand, though not comparable in destructive action with the earthquake at Krakatoa, must be regarded as among the most remarkable and destructive volcanic phenomena of the past twelve months.

It would appear that the centre of disturbance was Mount Tarawera, which has long been regarded as an extinct volcano. The Maoris had no record or tradition of any eruption since the time when their race first occupied the island. For several months before the eruption there had been signs of increasing subterranean activity in the neighbourhood. Whakari, 70 miles distant, had given evidence of exceptional disturbance. Mount Tarawera rises in the form of a truncated cone 2,000 feet above the sea-level, and about 1,000 feet above the level of the lake bearing the same name. Lake Rotomahana, to whose shores the volcanic hills flanking the western side of Tarawera extend, had been the seat of great thermal activity. Its water, deep green in colour, had an average temperature of about 80° F.; but the hot springs which rose from beneath its surface in various places raised the temperature to 112°. The shores were occupied by countless *fumaroles*.

In the opinion of Professor Hector, of Christchurch, N.Z., the outburst of Tarawera was caused by the sudden eruption of superheated steam into the volcanic channels leading to this outlet. Some sudden change in the action going on beneath the surface led to the generation of enormous quantities of steam, which, when superheated, acquired a high tension, enabling it to burst through the obstruction which had for a long time blocked up this outlet. The result was an eruption comparable in its character, as indeed it was similar in its cause, to the great outburst of Vesuvius, after many centuries of quiescence, in A.D. 69. Premonitory shocks of earthquake attested the progress of the contest which was going on beneath the surface. But these remained unnoticed, or at least were not regarded as warnings, in a region were signs of subterranean activity are the rule rather than the exception.

Earth Tremors.—M. A. de Abbadie noted throughout December, 1885, that the mercurial bath at his observatory in France, about 1½ mile from the Spanish frontier, was subject to almost continuous agitations. Their cause may probably have been connected with the Spanish earthquakes.

Underground Rivers.—General Maclagan, describing the rivers of the Punjab before the Geographical Society, points out that rivers flowing in a soft soil do not show all their volume. There is always water beneath the bed, and this may become something like a second river flowing under the larger one which we see. It happens sometimes that the underground

river meeting a retentive surface pours out over it, and becomes an ordinary surface river. The experiment has been made on the Jumna of shutting off the whole visible river with a weir, and turning it into the canals on either bank; a few miles below the river trickles down into the bed again, and farther below there is a river as before. In most river beds like those of the Punjab, when the sides are left dry in the low season, water is to be got under the dry bed as well as under the river. Plenty of water may often be got by scooping a mere hole.

Levels of the Atlantic and Pacific.—It has been definitely ascertained that there is no difference of level of any moment between the Pacific Ocean and the Atlantic Ocean at the Isthmus of Panama; so that, as proved to be the case with the Mediterranean and Red Sea on either side of the Isthmus of Suez, the cutting of a canal will lead to no destructive flow either way.

Biological.

The King Crab as a Traveller.—A king crab, *Limulus Polyphemus*, was caught, on May 26th, in the waters off the Farallone Islands, off the Californian coast. It is not usually known, by the way, that since 1869 the king crab has been recognised as not really a crab at all, but as occupying a somewhat doubtful position between a sea-spider and a sea-scorpion. The Larval Limulus is identical with the Trilobite; but while the Trilobite has succumbed to geological vicissitudes, Limulus survives. Its discovery near San Francisco is a point of some interest; for our eastern king crab was limited to the waters of the North Atlantic and West Indies, not even being found in South America. The most probable interpretation of the discovery seems to be that Limulus-eggs were accidentally introduced to the Pacific shores when the United States Fish Commission sent a number of lobsters from the east to stock the Pacific coast. This was about eight years ago.

Nourishment of Fruit Trees.—Numerous observations show that many phanerogams, especially fruit trees, draw their nourishment not directly from the soil, as was supposed, but through an investing layer of fungoid mycelium, to which the name Mycorluza has been given.

Late in 1885 attention was directed by Mr. Malling Hansen, Principal of the Danish Institution for the Deaf and Dumb, to the laws which govern the growth of the human body during

childhood. He showed clearly that the growth varies with the conditions on which health also depends. Thus a stunted population tells of bad sanitation, and therefore of ignorance or carelessness on the part of those who should be interested either as heads of families or as members of the community, in attending to sanitary arrangements.

Sulphate of Copper and the Vine.—MM. Millardet and Gayon have tested the effects of manuring the vine with sulphate of copper, so far as the juice of the grape itself is concerned. They find that most of the copper is deposited in the leaf, only a minute and doubtful trace appearing in the juice. Experiments with other salts and other plants show that the chlorophyll of the leaves is the most active agent in taking up the foreign matter.

The Double Poppy in Embankments.—M. Gambier, of the French railway service, has found that the double poppy is more serviceable than any other plant for fixing soils in embankments, or where there is wash. It grows quickly and helps to support the soil in about two weeks, while at the end of three or four months it forms a stronger network of roots than any plant known. The double poppy is an annual, but sows itself after the first year.

Fauna of Deep-Lake Floors.—The fauna of the Swiss lakes has recently been very carefully examined at depths below 75 feet under the surface. All the deep-water classes except echinoderms are well represented, the types being remarkably varied. The individuals composing the fauna are of smaller size than those of corresponding littoral species, and more opaque than the sea fauna. They are seldom coloured, are poor swimmers, and have no organs of attachment. The eyes are small or entirely absent in several species; but the defect is not uniform. Some animals are found with good eyes at the depth of 1,000 feet, others totally blind at a depth of 100 feet, where there is still some light. Dr. Plessis explains this by supposing that an emigration has taken place from a very remote period, and is still going on, from littoral (and formerly from pelagic regions) to the deep zone. Species which have most recently performed the emigration have not yet lost their eyes, while species which went down earlier had them atrophied. This is confirmed by the circumstance that in the same species we find perfectly blind individuals, others with eyes atrophied, others with sound but small eyes, according as they have descended

from stocks of various ages. The organs of respiration have undergone singular adaptations. Thus the larvæ of diptera in the lake bottoms have a tracheal system like the littoral insects, opening without by stigmata ; but these tracheæ are filled with water. Forel found that the *Lymneæ* of the bottom which exhibit the same peculiarity resume their normal method of respiration with surprising facility, as soon as they are placed in the air, and without appearing to suffer.

Germ Theory of Hydrophobia.—Whatever opinion may eventually be formed respecting M. Pasteur's researches into the origin of hydrophobia, and his method of producing a milder form of the disease by which patients may be inoculated in such sort as to be saved from the effects of the fatal form, there can be no doubt that confidence in the results he claims to have attained has been steadily growing. The experiments during the past year have not been uniformly successful, a proportion of the Russian patients who had been bitten by wolves having succumbed. But Pasteur himself had expected this result, and predicted its probable occurrence. Probably Professor Ray Lankester correctly presents the attitude of science towards M. Pasteur's results and method, when he says that unless we assume falsehood, such as for wickedness and folly would scarcely ever have been equalled, we must recognise Pasteur as having obtained results which of themselves will for ever place him high among the benefactors of the human race.

Brain of the Lion.—Herr Familiant, of Berne, has found that the brain of a lioness which he examined was intermediate in form between the brain of the dog and that of the cat ; but distinguished from both by the relatively small projection of the cerebellum, and the narrowness of the pyriform lobe. The chief fissures of the brain of carnivores are found, with minor differences, in the brain of primates.

Efficacy of Vaccination.—While there is a growing movement against compulsory vaccination, in which even advanced thinkers take part (over estimating, I think, the capacity of the average man for taking care of himself and others), the opinion is almost as widely maintained that vaccination is not even a prophylactic against small-pox. The following points of evidence recently obtained may, therefore, be profitably noticed :—

In Zurich Canton the law of compulsory vaccination was repealed three years ago. Official returns recently published by Professor Dunant enable us to judge how far compulsory vacci-

nation is desirable *in that community* at any rate. The death-rate from small-pox runs as follows :—

Date.	No. of deaths from small-pox.
1881	7
1882	0
1883	0
1884	11
1885	73
First quarter of 1886	85!

These figures need no comment except the remark that probably deaths from small-pox are far from being the worst results of an epidemic of the disease.

Even more conclusive evidence may be gathered from Dr. Jassen's book recently published at Brussels. Among other points take the following :—

In Germany vaccination is compulsory; in France it is not. Now, during 1885, in 21 towns in Germany, having an aggregate population of 4,000,000, the deaths from small-pox numbered 27; in 15 French towns, having the same aggregate population, the deaths from small-pox amounted to 866.

Submarine Chlorophyll.—M. Bocion, of Lausanne, reports the discovery in Lake Leman of a bright green moss growing in the bottom of the lake, on the calcareous rocks, 200 feet below the surface. This is the greatest depth at which moss has been found beneath water. The discovery is interesting because of the singularity of the circumstance that chlorophyll should be richly developed so far from the light.

Eyes of the Horse-Fly.—A discovery of quaint interest has been made by Mr. J. D. Hyatt, in his studies of compound eyes and multiple images. He finds that the lenses of the upper and forward parts of the eyes of the common horse-fly are of longer focus than those of the parts below the medium line; the facets, also, are nearly four times as large. The larger lenses form pictures at a plane considerably above the focal plane of the smaller ones. Thus these insects have two sets of eyes, long-sighted and near-sighted, the first set looking upwards and forwards, the second set looking downwards.

RICHARD A. PROCTOR.

THE MUSIC OF THE YEAR 1886.

EACH year that passes exposes with ever-increasing certainty the fallacy of a proposition that used to be widely if not universally accepted not so very long ago, and that was not altogether without foundation, the proposition, namely, that the English are not a musical nation. The keen and intelligent interest taken in the art by a numerous class of persons of general culture, rather than by a comparatively small body of specialists more or less ignorant of all beside, is of itself a most satisfactory sign of our advance ; and there is little doubt that the old intolerance and contempt once bestowed so freely upon all musical enthusiasts have given place to an attitude that is at least respectful, and, as compared with the former state of things, enlightened. But not only does the year mark a step in the progress of our national appreciation of music ; our native composers have not been idle, and their work this year has shown results which may on the whole be pronounced thoroughly satisfactory. In the other departments of the art English performers have maintained the high standard which they have in recent years attained, and which, it may confidently be hoped, will never be lowered. But it is the sphere of composition that is the most important feature of a nation's music, and it was the virtual absence of this feature that gave rise to the charge of which the present groundlessness has been already asserted.

One of the greatest incentives to composition in its larger and more important branches is our institution of autumnal festivals, for which choral and orchestral works are commissioned, as a rule, from English composers. In reviewing the productions of the year, the festival works of 1885 claim our first consideration, since they have formed the staple of the metropolitan novelties for the subsequent musical season. The most important festival of the year was that held at Birmingham on August 25—28, when a very large number of new compositions was produced. It is true that two of the most prominent of the works were of foreign extraction, but the chief composers of the modern English school were well represented. The two continental compositions were a sacred work by Gounod, entitled "Mors et Vita," and designed as a sequel to his contribution to the previous Birmingham Festival, "The Redemption," and a secular cantata by Anton Dvorak, built on a new version of the well-known Lenore legend,

under the name of "The Spectre Bride." The former, while lacking the attractive qualities which contributed to the temporary success of its predecessor, presents the same glowing richness of orchestral colouring, but its weakness of construction and its lack of originality, together with the extreme ugliness by which the composer has seen fit to typify the solemnity of his subject, render it extremely unlikely that it will ultimately attain any lasting success or enhance its composer's reputation. The latter work, on the other hand, is a conception of such undoubted genius, and at the same time of such weird originality, that the attention of the hearer is arrested at the outset and never allowed to flag for a moment till the conclusion. Its success, both amongst musicians and with the general public, has already been very great, and there seems no reason to doubt that it will continue. Of the English compositions produced at the festival the most important was Mr. C. V. Stanford's oratorio, "The Three Holy Children," a work of very great power, and one which is destined to a high position among the masterpieces of English music. The breadth of its design and the sustained power of treatment which it displays, are surpassed in none of the composer's previous works, while the grandeur of some of the larger numbers, and the beauty by which the whole is pervaded, are equally remarkable among modern compositions of the kind. A fine setting of the hymn "Rock of Ages," by Dr. Bridge, an extremely graceful cantata on the subject of "The Sleeping Beauty," by Mr. Frederic Cowen, and a very interesting violin concerto by Mr. A. C. Mackenzie, the solo part of which was magnificently played by Senor Sarasate, were the most successful among the less important novelties; the list of these was completed by a short cantata by Mr. Anderton, entitled "Yule-tide," and a symphony by Mr. Ebenezer Prout, neither of which presented any features of especial interest—though the last-named composition has since been repeatedly and successfully performed in London and elsewhere. A peculiar interest was given to the festival by the engagement of Herr Richter as conductor, under whose masterly direction the performances reached a pitch of absolute perfection. The rendering of "The Messiah," under conditions corresponding in many particulars with those intended by the composer, and the abandonment of certain additions to the score which had formerly been foisted in, was very remarkable, since the work had never been presented in anything like an ungarbled form to any of the present generation. The

Hereford Festival, which took place on September 8—11, presented only one novelty of any degree of interest. Mr. C. H. Lloyd's cantata, "The Song of Balder," a work of the smallest dimensions, but one which displays skill and taste in a very remarkable degree. The other new composition produced was also a secular cantata on "The Legend of St. Kevin," by Dr. Joseph Smith, a young Irish composer, who as yet lacks the experience requisite for the treatment of so extensive a work, though certain qualities discernible here and there give some promise for his future. With the exception of this and one or two other productions all the festival works have been subsequently given in London by one or other of the metropolitan choral societies. To the number of these societies another has been added in the shape of a choir connected with Novello's Oratorio Concerts. A series of concerts under this name was inaugurated on November 10th under the direction of Mr. A. C. Mackenzie, and in the course of the season most of the successes of the Birmingham Festival were presented to a London audience. The concerts culminated in the performance of Liszt's "Legend of St. Elizabeth," given on the occasion of the composer's visit, to which we shall refer subsequently. Another firm connected with music started a series of four orchestral concerts during the winter. The "Brinsmead" Concerts were remarkable rather for the excellence of the orchestra and the prominence given in the programmes to pianoforte concertos than to any particularly admirable interpretation of the composition performed. The proceeds were announced to be devoted to various charitable objects, and a prize was given for the best concerto written for the instrument in whose manufacture the firm is engaged, so that the concerts were professedly given from the most disinterested motives. Several works by M. Saint-Saëns were the most interesting productions of the series, which would have been more successful if the conductors had been more competent than they were.

All the established series of concerts were carried on through the year with at least the usual amount of success. Among orchestral concerts the Richter series, comprising three concerts in the autumn and nine in the summer, hold the highest position in respect of the eminence of the conductor. Few of the programmes contained any item that was not thoroughly familiar to the patrons of the concerts; but one production alone would serve to defend the series from the charge of monotony. The

new symphony (in E minor, No. 4) by Johannes Brahms, performed for the first time in England under Herr Richter's direction, is a work of the very highest order of merit, and must be assigned a conspicuous place even among the works of the greatest of living composers. A curious innovation in musical form is introduced in its last movement, the structure of which is based upon the form known as the Passacaglia, a form especially favoured by the old masters, but never before applied to the purposes of modern music. A symphony by Bruckner was promised for one of the concerts, but the expectations of the audience were disappointed. Mr. Stanford's incidental music to the "Eumenides" of Æschylus, of which we shall have occasion to speak later on, was introduced to a London audience at one of the Richter Concerts, two more of which were taken up by a somewhat ill-judged performance of the entire second act of Wagner's "Tristan und Isolde," together with a considerable excerpt from the same composer's "Siegfried." The Crystal Palace Concerts were carried on with great artistic success throughout the winter and spring. The falling off in the attendance is due rather to the increased excellence of concerts in London itself than to any inferiority in the style of performance given by Mr. Manns. All the more prominent artists who appeared in London, with very few exceptions, were heard at Sydenham, and the great majority of the new compositions of the year were repeated there. A Liszt celebration on the occasion of the composer's visit was, perhaps, one of the most interesting of the concerts given in his honour, since a judicious selection from his most pleasing works was made. Senor Sarasate followed up the success of his orchestral concerts, begun in 1885, by a second series this year, again directed by Mr. Cusins. The great violinist provided programmes of some considerable interest, especially in the department of concertos for his own instrument: the general level of the performances was fairly creditable. The choral societies have for the most part confined their exertions either to familiar works or to recent festival productions. The Albert Hall Choral Society and the London Musical Society, under Mr. Barnby, and the Sacred Harmonic Society, under Mr. Cummings, have had successful seasons, and Mr. Leslie's Choir has given two attractive concerts of the usual type. The Bach Choir has made a new departure under the direction of its new conductor, Mr. C. V. Stanford, who succeeded Mr. Otto Goldschmidt at the beginning of the musical season; a performance

of extreme interest took place on March 25th, when the third part of Schumann's "Scenes from Faust" was rendered in a manner that left little to be desired. On the same occasion Herr Joachim played his own Hungarian concerto in splendid style.

In the department of chamber music the Popular Concerts retain the position they have held for many years. Their patrons show no resistance to the somewhat monotonous policy that governs the arrangement, and are content to hear one certain set of the classical masterpieces faultlessly interpreted without inquiring into the worth of more modern compositions. For those who desire to hear these last Mr. Hallé's excellent series of chamber concerts is provided. The lovers of absolutely new and unknown music can only be satisfied at the semi-private concerts of Mr. Dannreuther, who has recently produced some excellent concerted works, prominent among which are Mr. Hubert Parry's string quintet in E flat, and a quartet by Gernsheim. The short series of chamber concerts given in the autumn by Mr. Peiniger deserve mention on account of the extreme interest of the programmes. The compositions of the old English composers for stringed instruments were absolutely a dead letter, even if they were known to exist, until Mr. Peiniger proved them to be as effective as they are historically interesting. Several smaller series have taken place, as for instance the chamber concerts of Madame Frickenhaus and Herr Gustav Ernest, but they do not call for special mention. Vocal recitals and concerts at which concerted vocal works have been a prominent feature have this year come greatly into vogue. Mr. and Mrs. Henschel gave several delightful entertainments of the kind, sustaining the entire programme themselves. Mr. Franke also gave an interesting series, in which a vocal quartet was the principal attraction, and Brahms "Liebeslieder" and kindred works by Schumann and Roentzen were performed creditably, if not with an extraordinary degree of excellence. Mr. Charles Wade, one of the most successful of young tenor singers, gave one or two concerts of the same kind.

Three young English artists have made first appearances, which give great promise for their future. Miss Fanny Davies, a pupil of Madame Schumann, has delighted audiences at the Popular Concerts and elsewhere by her extraordinarily thoughtful and artistic pianoforte playing; Miss Lisa Lehmann, the possessor of a clear soprano voice, has made a distinct mark by her perfection of *technique* and her charm of style; and Mr. Frederic Lamond, a pupil of Liszt, succeeded in arresting public attention

by the surprising accuracy of his playing and the breadth of his style, at a time when success was very difficult to obtain owing to the extraordinary influx of the greatest pianists of the world, all of whom, without exception, visited London this year. Among the *débuts* made by foreign artists, those of two violinists, M. Tivadar Nachez and M. Ondricek, are all that need be chronicled. Of operatic *débuts* we shall speak later on.

The year 1885 was remarkable for the number of distinguished musical visitors who were successively received with adulation. The annual visit of Joachim is happily no exceptional thing, but it should not be overlooked on that account. Signor Piatti's return to the Popular Concerts, after his accident, which it was feared might prevent the resumption of his familiar labours, was hailed with unfeigned delight, and it is satisfactory to see that his powers are undiminished. The advent of Madame Schumann was quite unexpected until the week before her name was actually announced for the next concert; her reception was of the heartiest, and her performance remains as delightful as ever. The admirable performances of the Heckmann string quartet, whose *ensemble* playing is little short of marvellous, must not be left unnoticed, nor the single pianoforte recital given by Madame Szarvady, better known by her maiden name of Wilhelmn Clauss, whose eminence is based upon her thoroughly artistic and intelligent rendering of works chiefly of the romantic school. The series of seven historical recitals promised by Rubinstein was long looked forward to, and the greatest difficulty was found in obtaining seats even some time beforehand. His playing, and the extraordinary feats of endurance displayed in the length of the performances, created a perfect *furore*, and it is certainly a long time since anything of equal interest was heard in London. Perhaps the most interesting recital was the first, which embraced all the old composers down to Mozart. The manner in which the music, originally written for the harpsichord or earlier instruments, was rendered, was worthy of all praise for its delicacy and the absence of exaggeration. It would not of course be safe to copy, if that were possible, every detail of the artist's rendering of works like Beethoven's sonatas, for the composer's marks of expression are thrown to the winds; for all that it is a marvellous interpretation of Beethoven's spirit, and one cannot but feel that everything must be excused in the case of so transcendent a genius. The visit which occasioned most agitation was that of the Abbé Liszt, concerning whose coming

the whole of London society was in a ferment for weeks beforehand. The principal public occasion on which he appeared was the performance of his oratorio, "The Legend of St. Elizabeth" at Novello's Oratorio Concert on April 6th. The work itself failed conspicuously to maintain the interest of the crowded audience, although its performance was admirable in almost every respect, but the presence of the composer rather than his work was the attraction. On one or two occasions at private receptions he played, to the delight of his hearers, and his exquisite delicacy of touch and beauty of tone were found to be unimpaired by time, though his power was naturally much diminished. It is to be feared that the excitement of his visit to England was in some measure instrumental in weakening his constitution and rendering him liable to the illness which attacked him during the Wagner Festival at Bayreuth, where he died on July 31st.

Dramatic music has been this year in a more flourishing condition than it has been for some years. First in order of time comes the performance of the "Eumenides" by Cambridge students, which took place at the University on December 1—5, 1885. Mr. Stanford's choruses and incidental music were so important that the performance was as much to be regarded from the musical as from the dramatic point of view. The task of setting the choruses of Furies to music was much harder than that of writing music to the Greek plays previously produced at Cambridge, and that Mr. Stanford's music was no whit less attractive to the general hearer than Mr. Parry's music to "The Birds" of Aristophanes, or Sir George Macfarren's "Ajax" music, is no small praise; in earnestness and vigour it may be held to surpass either of these compositions, though both were thoroughly excellent. In the early part of the year a scheme for Italian opera was set on foot at Her Majesty's Theatre, but though attractive promises were held out, the performances were so execrably bad, and the singers so incapable, that the result was the most egregious failure that has ever been known in England. The proceedings closed abruptly with a riot occasioned by a strike among the choristers who had been defrauded by the manager. An operatic venture of more stability, and one of which the result was on the whole satisfactory, was inaugurated at Covent Garden on April 25th. Although the promises of new productions were—as is usual in Italian operatic schemes—unfulfilled, with the exception of that of "The Ballo in Maschera,"

many creditable performances took place. Of course the chorus and the *ensemble* were thoroughly bad throughout, but among the chief singers several were excellent. Madame Albani held the principal place, and satisfactory *débuts* were made by Miss Ella Russell, a young American soprano, Madame Giulia Valda, Mdlle. Teodorini, and Signor d'Andrade. Five days after the opening of the Italian Opera Mr. Carl Rosa, who had not previously ventured to come into such direct collision with that form of opera, which used to be the only form recognized by the fashionable world, inaugurated his season of English operas at Drury Lane. Upon the whole his venture must be regarded as successful, though the single novelty presented by him attained no appreciable degree of public approbation. This was an opera by Mr. A. C. Mackenzie, called, after many changes of name in the announcements, "The Troubadour;" the score is very skilfully constructed, and contains some pleasing if not strikingly original numbers; but the plot is so disagreeable, and the situations so strongly suggestive of other works, that in spite of an excellent performance, in which Madame Valleria and Mr. Barton McGuckin took part, the favourable reception granted on the first night was not repeated on subsequent occasions. Three of Mr. Rosa's former successes, "Carmen," "Manon," and Mr. Thomas's pleasing "Nadeshda" were repeated to crowded houses, and a delightful performance of "Figaro" was given. The only first appearance of importance was that of an American tenor, Mr. Scovel, whose reception was exceedingly favourable. No summary of the year's music would be complete without a mention of the Wagner Festival at Bayreuth, for though it cannot be said to concern English music, yet the English contingent among the audience was so large as to show that its influence upon our country's music is by no means unimportant. Between July 21st and August 20th seventeen performances were given alternately of "Parsifal," the master's latest, and, in the opinion of most critics, his greatest work, and of "Tristan und Isolde," which can only be considered its inferior inasmuch as a secular subject must stand below a sacred. Both works were performed in a manner that transcends all description, and the long and tiresome journey to the out-of-the-way Bavarian town was forgotten in the delight of the feast of music provided at its close.

The announcements for the autumnal festivals were extremely attractive, and the prospect for the London musical season very

satisfactory. At the Festival of the Three Choirs at Gloucester in the beginning of September, the chief novelty was a short oratorio by Mr. W. S. Rockstro, entitled "The Good Shepherd." It is almost entirely a meditative rather than a dramatic treatment of the subject that has been chosen, and its musical structure is exceedingly interesting. Mr. C. H. Lloyd's secular cantata "Andromeda" was looked forward to with eager expectation, and Mr. Hubert Parry's orchestral suite completes the list of new compositions. At Leeds the programme of the Festival beginning on October 14th presented a very large number of novelties, instead of the well-worn "Messiah" and "Elijah," "Israel in Egypt" and "St. Paul" being promised—a welcome change; Bach's Mass in B minor occupied a prominent place; and the new works are as follows:—A cantata, "The Legend of St. Ludmila," by Dvorak; "The Golden Legend," by Sir Arthur Sullivan, the conductor of the festival; "The Story of Sayid," by Mr. A. C. Mackenzie; and a choral setting of Tennyson's "Revenge," by Mr. C. V. Stanford. In addition to the regular concerts of the season 1886–87 a new series is to be undertaken by Mr. Henschel, who intends to appear before a London public in the capacity of conductor—a post which he has filled with great success in America. The concerts are to be given throughout the winter at short intervals, and it is to be hoped that the effort will be crowned with success.

The year has not been very rich in valuable additions to the literature of music, but there are several books that have considerable merit. The most important of these is Mr. W. S. Rockstro's "History of Music," a work which has a distinct value of its own, though perhaps its subject is a little too ambitious, not for the writer, but for the size of the volume; in treating of the music of certain schools, notably those of the early Italian period, he is particularly happy, since he has made the subject all his own; but much of the book suffers from over-compression. To vocalists Dr. Morell Mackenzie's "Hygiene of the Vocal Organs" will prove a most useful handbook, while the general reader will find that it contains much that will amuse and interest him. In like manner pianists will be especially interested in a series of letters on "Music Study in Germany," written to friends in America by Miss Amy Fay, and just published in England. The account of her intercourse with Liszt is perhaps the most valuable portion, historically speaking, and the death of the master has given it an additional

interest. The "Life of John Hullah," by his widow, is exceedingly interesting to musicians and the general public alike. Sir George Grove's Dictionary is still in course of publication, but is at last approaching its end; the last number is carried to the article "Water Music." Messrs. Breitkopf and Härtel have inaugurated the publication of complete editions of the works of Heinrich Schütz and Franz Schubert.

The institutions for the training of musicians are in an exceedingly prosperous condition, if we judge from artistic results. The students of the two most prominent of these have lately come before the public in operatic performances; the students of the Royal Academy performed their principal's not very interesting opera, "Jessy Lea," in a creditable manner, and the pupils of the Royal College of Music gave a performance of very great interest in the Savoy Theatre under the direction of Mr. C. V. Stanford, on which occasion Cherubini's "Water Carrier" (Les Deux Journées) was given in a style that was surprisingly good, considering the youth of the institution. One or two of the singers concerned give real and decided promise for the future, and all who took part displayed a care and conscientiousness that is all too rare on the regular operatic stage.

The foundation, or rather the first London conference, of a new institution under the name of "The National Society of Professional Musicians," must be briefly recorded. Founded in Lancashire some three years ago, the number of its members has greatly increased, and in some ways its object is eminently praiseworthy. It aims at uniting English professional musicians into one body, and so far as this goes it deserves support, but, when it comes to excluding non-professional musicians, as well as ignoring all the attainments of foreign artists, it is to be feared that the promoters of the scheme have overshot their mark.

The proceedings of the Musical Association have not been especially interesting this year, but its value as a scientific institution has not been lowered. Papers on the following subjects have been read:—"Music in Elementary Schools," by the Rev. Marmaduke E. Browne; "The Orchestras of Bach and Handel," by Mr. Ebenezer Prout; "The Mannerisms of Beethoven," by Mr. J. S. Shedlock; "On the Position of Organs in Churches," by the Rev. Sir F. A. Gore-Ouseley, Bart.; "Style," by Mr. Ferdinand Praeger; "Music as a Language," by Mr. H. C. Banister; "The Development of Modern Wind Instruments," by Mr. D. J. Blaikley; and "The Old Clavier or Keyboard In-

struments: their Use by Composers, and Technique," by Mr. A. J. Hipkins. With the exception of the last none of the papers presented any features of exceptional interest.

The obituary record for the year is happily not a very large one—for England at least; abroad the art has to bewail several heavy losses. Among English musicians the following deaths have to be mentioned:—Miss Elizabeth Philp, well known as a writer of songs, November 26th, 1885; Miss Annie Butterworth, one of the most promising of our young contralto singers, December 9th; Miss Susan Pyne, the sister of Miss Louisa Pyne, herself of some celebrity in connection with the "Pyne-Harrison" Opera Company, January 5th; and the greatest loss of all Joseph Maas, the eminent tenor singer, who died on January 16th, aged 39. To these names must be added that of Robert Stuart Callcott, who gave rare promise, not only as an organist but as a composer, and who would, had he lived, have kept up the glories of his family. He was a son of the late William Hutchins Callcott, and died on April 7th at the age of 34. On April 23rd, Josiah Pittman, whose name is well known in connection with music, died at the age of 70. The catalogue of deaths among foreign musicians embraces, during the autumn of 1885, the names of two composers of some eminence, Friedrich Kiel, September 13th, aged 64, and Gustav Adolph Merkel, October 30th, aged 58. On December 18th, Ludwig Nohl, an eminent German writer on music, died at Heidelberg, aged 54, and on January 16th Amilcare Ponchielli died at Milan, aged 52. He belonged to the modern school of Italian composers, of which he was a distinguished member. His opera, "La Gioconda," was successfully produced a few years ago at Covent Garden. The German stage has sustained two severe losses, in Josef Aloys Tichatschek, born 1807, died January 19th, 1886, the celebrated tenor singer, and in Herr Scaria, the most eminent of Wagnerian baritones. Louis Köhler, a well-known arranger and composer for the pianoforte, died at Königsberg on February 16th, aged 66, and Marie Heilbron, one of the most famous of French female singers, died at Nice on March 31st. The widow of the composer Meyerbeer died on June 28th at Wiesbaden. Of the death of Franz Liszt we have already spoken. It took place at Bayreuth, in the house of his daughter, Madame Wagner, on July 31st.

J. A. Fuller-Maitland.

SPORT IN 1886.

THE history of a year's sport necessarily covers a large field; and to do the subjects ample justice, the space at our command might be occupied with a notice of a single sport or pastime. But, for the general reader, this mass of detail is not required; we, therefore, confine ourselves to a cursory glance at the chief phases of sport, in the hope that even this outline may not be without interest. It may perhaps serve the purpose of drawing attention to the vast sums of money distributed by those indulging in sport and pastime, and of suggesting what a bad thing it would be for our island were sport to lose its hold upon its inhabitants, or were it to be put down by the efforts of a band of well-intentioned, but thoroughly prejudiced persons.

It is difficult to know how to describe the past yacht racing season, but it is scarcely possible to write it down as a success. During the early portion of it there were only two representatives of the A class, the "Irex" and "Marjorie," consequently the endless contests between the pair grew to be excessively uninteresting. Later in the season the "Genesta" joined them; but three "regular racers" are, after all, but a sorry substitute for the fleet of big cutters, forties, schooners, and yawls we used to see years ago. Of C class racing there has been a considerable amount—much of it very good; but the C class is to the A class what the hunter is to the Grand National competitor; or what a race between two coast guard galleys is to a race in racing boats. According to the new classification, the C class must, in course of time, become the refuge of out-of-date racers, but what has actually happened is that so many vessels have prematurely qualified themselves for it by a reduction of spars and canvas. This should have been foreseen. When A and C classes meet in the same race, the A's are heavily handicapped, while the use of long spars, with sails to match, entails a good deal of carrying away, and therefore means enormous expense. On the score of economy, then, it was but natural that many owners of vessels who would, under different conditions, have remained in the A class, saw what was to be gained by descending to the C class, and joined it accordingly. Now that they have done so, the owner of the *bonâ fide* cruiser, an undefined term hitherto, cries out that he is

cut out of racing, owing to the presence of the very vessels the Y.R.A. intended to sail as A's. In what way oil will be poured on the troubled waters, time alone will show; but at present it seems as though yacht racing were, to use an expressive phrase, "knocked on the head."

Scarcely had the yachting season set in ere a sad fatality overtook the designer and owner of the "Oona," a new racing 5-tonner, built by Fay for Mr. Plunkett, of the Royal Ulster. During a severe gale she touched the ground, her lead keel of 9½ tons became detached; the hull capsized, and all on board were lost. To turn, however, to pleasanter topics, the New Thames Yacht Club had fine weather for their opening match; and the "Galatea" made a good show against "Irex" and "Marjorie," until she carried away her bowsprit; soon after that was repaired she proceeded on her way to America to compete for the America's Cup. In the C class were such quondam cracks as "Wendur," "Erycina," "May," "Annasona," "Arethusa," and "Neptune." Corinthian racing has been for some time on the rise, and such ambitious undertakings as Channel matches from Dover to Havre now find their way into the season's programmes. This race, like that from Dover to Ostend, suffered from a lack of wind. Want of space precludes us from following up the matches in detail, so we must content ourselves with stating that the Royal London now husband their resources for the Cowes season, and this year had a very successful regatta. Nor did failure attend the Squadron regatta. For the Queen's Cup there was quite an old-fashioned entry, including four big schooners, which quite reminded one of old times. Though we are far removed from the scene of "Galatea's" matches against the American yacht "Mayflower," news of the contest was anxiously awaited. We hoped rather than expected that "Galatea" would prove successful. All the yachting world now knows that "Mayflower" proved victorious on each occasion, and the Americans are more than ever convinced of the superiority of their sloops over our cutters; they admit, however, the smartness of the "Galatea's" crew. No surprise need be felt at the victory of the "Mayflower," especially in such light breezes as prevailed during both matches. In the first place the sail area of the "Mayflower" exceeds that of the "Galatea" by 1,182 square feet; and, secondly, whereas the former has close upon 48 tons of lead, the latter has close upon 80 tons, a state of things that must materially have con-

tributed to success in light airs, not to mention the difference in the two types of hulls.

Had it not been for the series of international sculling races, promoted by Mr. W. J. Innes (to whom a testimonial was presented at a banquet given in his honour), the rowing season, so far as professional rowing is concerned, would have been a blank. A few minor matches paved the way for *the* races which proved disastrous to the English contingent, Bubear and Perkins never being able to make the semblance of a struggle. The survival of the fittest resulted in Beach, the Australian, beating the rest, and becoming possessed of upwards of 1,200*l.* of really added money. On Saturday, the 18th of September, Beach, the Australian, and Jacob Gaudaur rowed from Putney to Mortlake for the Championship of the World. The race will long be remembered as a remarkable one. The Australian led at the start, but was passed at the boathouses by his opponent who, however, was repassed by the Australian just afterwards. At the end of the first mile the American seemed quite exhausted, and was two lengths behind at Hammersmith Bridge. From the top of Chiswick Eyot, where three lengths divided the two boats, Gaudaur began to gain, and had drawn up level at Thorneycroft's. At the Pumping Station Beach was compelled to cease rowing for a stroke; eventually Gaudaur went ahead, and Beach easied for the second time, to the consternation of his supporters. Of the pair Gaudaur was the most fatigued, and Beach eventually won by three lengths. A more exciting professional race has seldom if ever been witnessed. In his match against Wallace Ross, Beach had a very easy victory; he seemingly won as he liked. Hanlan subsequently appeared in England and challenged the champion, who declined, upon the grounds that he had been in England four months, could have been challenged before, and had arranged to leave England. Then came the regatta at the Welsh Harp, Hendon, a fixture remarkable for two circumstances. In the first place a race on still water, and over a course in which the men had to turn round stake-boats was a novelty, and secondly, because Bubear, an Englishman, won.

Meantime amateur rowing has gone on merrily. Cambridge with nearly all new men put a feather in her cap by beating Oxford who had nearly all their old hands, after one of the grandest struggles ever seen. That they won after all is beyond question due to the pluck and admirable generalship of Mr. Pitman. After much talk, and years of protestation against the

unfairness of the old course, a new and it must be added successful departure was taken at Henley by starting the boats below the island, staking out the course, and finishing at Poplar Point. House boats and ostentatious vulgarity were to the fore as usual; but there was some capital racing, and Cambridge bore away the honours. The competition for the "Grand" was of an exciting nature throughout. In the May races at Cambridge, Trinity Hall went head of the river, a distinction that has not befallen them for twenty-two years. Having achieved this honour, they not unnaturally set their eyes towards the Grand at Henley; and the result proved that they did not over-estimate their powers. In the first heat they beat Thames, a surprise to some people, and then, contrary to general expectation, Kingston beat London, both races being closely contested nearly all the way. A powerful Oxford Etonian eight experienced no difficulty in vanquishing Twickenham, and on the second day Kingston succumbed to them. The third day—this extra day is an innovation at Henley—witnessed the final heat between "The Hall" and the Oxford Etonians; a race that will long live in the memories of those who saw it. "The Hall" came away so quickly at the start that on passing the island they were nearly half a length to the good. The Etonians then drew up, and were level all but a few feet at Fawley. Thence to the finish a ding-dong race ensued, Trinity Hall just winning by about a quarter of a length, beating the record by covering the course in 6 min. 53½ secs.; but this is only one of several records broken at this year's Henley Regatta. The final heat for the Grand is also remarkable, inasmuch as the Oxford Etonian combination has never before been beaten when competing at Henley. After another neck-and-neck race, Pembroke (Cambridge) beat Eton for the Ladies' Plate, Cambridge also taking the Visitors' (4-oars) Pairs and Sculls. Had not Churchill and Muttlebury, winners of the pairs, been a good deal faster than the brothers McLean, they would not have claimed ultimate victory, as in the course of a somewhat erratically steered journey up the river they nearly rooted up one of the posts set to mark the course, and all but subjected themselves to a heavy penalty by maiming a swan that with marvellous temerity paddled out to meet the racing boats; but then the occupants of a pleasure craft have for years set the swans a bad example. Nearly everyone expressed himself as confident of seeing Unwin, of Oxford, beat Pitman, of Cambridge, for the Diamond Sculls. Unwin, how-

ever, did not strike us as being in his old form, an opinion that received confirmation by his withdrawal from the Wingfield, of which trophy he was the holder. Pitman beat him at Henley, and won the Wingfield Sculls from Cumming, and Cowper-Smith, an Artillery Officer. Why is it, by the way, that so few army men are seen in athletic contests? Are the mess dinners too rich to train on? Whatever the cause, the fact remains that except in the pigskin "soldier officers" but rarely trouble starter and judge.

The history of the year's "classic" races on the turf is simply the history of the Duke of Westminster's good horse Ormonde, a son of Bend Or, who won the Derby in 1880, and was himself the son of Doncaster, the Derby winner of 1873. The "Two Thousand" Ormonde won in a canter, that being the last occasion on which he started with odds against him. The Derby we are inclined to regard as not having been won in quite the hollow fashion some people made out. Our own idea is that at one time Archer deemed the Bard a dangerous opponent; he certainly sat down and rode Ormonde hard for a couple of dozen strides, and it may be doubted whether the distance by which the Derby was won could have been made into a very much greater gap. The St. Leger never cost Ormonde an effort. Since Lord Lyon achieved the distinction in 1866, no horse has succeeded in winning all three races, "the triple crown" as the reporters term it, a phrase that did duty in twenty-five places in the Thursday's papers. Ormonde's career has been a phenomenally conquering one. As a two-year-old he started thrice; this year he has started seven times, has never yet suffered defeat, and has credited the Duke of Westminster with upwards of 22,000*l*. We need hardly stay to point out that Ormonde's reputation and powers robbed the Leger of every particle of interest.

As a two-year-old, the Bard's conquering career was unchecked, no fewer than sixteen races in succession having been carried off by him. He, however, never met any of the prominent two-year-olds, so that, when he commenced this season, no one could say how good he was. His first three-year-old race was the Derby, in which, as we have seen, he was beaten by Ormonde, and in the Manchester Cup he was again second, when giving 2 st. 3 lbs. to Riversdale; since then he has not known defeat. His owners came to the conclusion, somewhat prematurely it would appear, that the Bard was inferior to Silver, and on

that account declined to start him for the Cæsarewitch, a course of action that has exposed them to much hostile criticism. Minting and Saraband have both gone amiss; Gay Hermit and Philosophy have done fairly well; though the latter showed at Doncaster that stamina is not her strong point. The high-priced Oberon, after a most unsuccessful two-year-old career—he did not win a single race—has failed to turn the tide of luck in his solitary appearance this year. Bread Knife was a good two-year-old—the Northern men held him in high estimation—but he, too, has gone wrong, and has forsaken the post for the paddock. The two-year-old reputation of Braw Lass rested mainly on her performance in the Middle Park Plate, when she ran Minting so close; her three-year-old career has been unlucky rather than brilliant. She was third in the Oaks, second in the Coronation Stakes, unplaced in the Eclipse Stakes, and only beaten by a head by Philosophy in the Yorkshire Oaks. Miss Jummy, the Oaks heroine, has won five races out of eight, but the three-year-old fillies are decidedly inferior to the colts.

As each fresh candidate has come out, it has been the fashion to say that "we have not yet seen a really good two-year-old." Be that as it may, there are one or two who in their generation have made themselves, if not exactly famous, at any rate notable. Lord Zetland's Panzerschiff, for example, had been emulating the feats of the Bard, as he carried off eight successive races prior to his dead heat with Grandison in the Doncaster Champagne Stakes. Beginning with the Eglinton Nursery in York, he won the Twenty-Ninth Biennial at Ascot, the Richmond Stakes at Goodwood, besides other events at Stockbridge, Redcar, &c. In Grandison he met the toughest opponent with whom he has yet tried conclusions. The St. Leger and the Champagne Stakes were considered at the mercy of Ormonde and Panzerschiff respectively, but while the former certainly came off in glorious fashion, the two-year-old race resulted in one of the finest races seen on a racecourse for many a day. From start to finish Panzerschiff and Grandison ran almost neck and neck, and made a dead heat of it. Grandison, therefore, who had won both the races in which he had previously started, must be ranked as one of the best two-year-olds of the season. Captain Machell gave it as his opinion that Kilwarline was the best two-year old he had tried since Hermit, and he won a race at Doncaster in good style; though the value of the performance was somewhat

discounted next day when, with long odds betted on him, he succumbed to a common plater like Rêve d'Or. To extraordinary changes in form, however, we are not unaccustomed. Accident of course governs a great many; but it would not be difficult to write down half a dozen instances which might have warranted that somewhat supine body, the Jockey Club, in demanding "explanations."

But to return for a moment to the two-year-olds. Salisbury made his first appearance in the Breeders' Plate at Newmarket in May, when he defeated Guadiana, Mamia, and Isosceles—the latter a stumbling-block to the ring in the matter of pronunciation. He was voted smart, but the value of the above performance was to some extent discounted when he succumbed to Jack o' Lantern at Manchester in June; and the latter lost caste by being beaten by Mamia, to whom he was conceding 3 lbs., at Windsor, when he started with odds of 6 to 1 on him. The Baron, a colt by Xenophon, made his first appearance in a Maiden Plate at Newmarket in May, and followed up his success gained there by taking the Woodcote at Epsom. He has since added a couple of victories to his score, but he has never yet tried conclusions with what are considered the pick of the two-year-olds.

Want of space precludes us from doing more than very briefly touching upon the handicaps of the season, as far as they have hitherto progressed. The acceptances for those framed by Major Egerton, the new official handicapper, have, in the main, formed a great compliment to the gallant gentleman's efficiency and impartiality; the result of his handicapping in the Cæsarewitch and Cambridgeshire must be particularly comforting to him. The running of the Eclipse Stakes at Sandown Park, the prize for which was 10,000*l.*, the greatest amount ever contended for in this or any other country, will cause the year 1886 to stand out prominently when the history of the turf comes to be written. The most pleasing circumstance in connection with this great race is the fact that it fell to the lot of a good horse, Bendigo, the property of Mr. Hedworth Barclay, a good upright "patron of the turf." It would have been a thousand pities had it been won by some turf adventurer. Whether the institution of such gigantic prizes is altogether likely to be beneficial to racing is a matter admitting of two opinions. Such an example was morally certain to be followed, and it is not with a feeling of entire satisfaction that those having the best interests of the turf at heart learned that Kempton and Manchester have now announced

races framed on similar lines, with prizes of 10,000 guineas and 11,000*l.* respectively. To the list of the season's surprises the Cæsarewitch must be added. Many turf writers mentioned Stone Clink, the winner, it is true, but only to say that she was not class enough to win. According to popular opinion The Cob should have won but for rather injudicious riding.

During the year, Jockey Club legislation has been sufficiently noteworthy to claim passing notice here. The rule excluding from handicaps all horses not trained in Great Britain unless they shall have run twice within the preceding six months in the racing season, has been adversely criticised by every competent writer on turf subjects. Nor have their strictures been undeserved, as the rule betrays no symptoms of that large-heartedness popularly, though at times incorrectly, ascribed to the true sportsman. It is an additional blot on this piece of legislation that it excludes Irish horses, and puts them on the same footing with French or Hungarian animals. Then with regard to foreign horses, we certainly do not owe much to our French neighbours, as the bulk of their important races are closed to us; but if the want of reciprocity were the true grounds of the passing of the rule, it would have been better to have said so, and not to have disqualified Irish horses. Permitting apprentices who have not ridden three winners to claim 5 lbs., when riding for their own stable, had for its object the laudable endeavour to encourage rising talent. This it has done to a certain extent; but, at the same time, so far as handicaps are concerned, the rule nullifies the handiwork of the handicapper. In consequence of Edwards, a rider of mature years, who was apprenticed to Captain Machell for a twelvemonth, claiming the allowance when riding Crafton, in the Steward's Cup at Goodwood, the operation of the rule is now narrowed down to apply only to young apprentices. Other branches have also come in for legislation, but are of minor importance.

The shooting season of 1885–86 is now buried in the past, and nearly the only thing to notice in connection with the present one is the wide discrepancy that exists between the actual number and condition of grouse on the moors, and the description of the same as circulated by interested parties, which descriptions often find their way into print in the daily press. Hitherto it has been considered impossible to construct a gun that shall be effective with ball for short distances—50 or 100 yards—and also with shot for use at game. This puzzle has, however,

now been solved by Messrs. Holland, who, improving upon Colonel Fosbery's patent, have brought the "Paradox" gun to as near perfection as possible. At 50 and 100 yards no rifle can beat it for accuracy; while, when used as a shot gun, it shoots as close, and with as regular a pattern as the best fowling piece. This is the more extraordinary, as the gun is rifled for about an inch at the muzzle. In connection with shooting may be mentioned the appearance of two volumes on shooting in the Badminton Library series. Sundry able pens have contributed to their pages, among them being Sir R. P. Gallwey. Against this gentleman the *Field*, after an exhaustive review, brought a charge of wholesale plagiarism, from which it appeared that whole extracts had been taken without a word of acknowledgment. There is no doubt an answer to the charge; but it has not yet appeared. It may not be out of place here to notice the other Badminton volumes, viz., those on hunting and racing. We must confess to being disappointed with them. There is too much paste and scissors in them; too much of light magazine style, and not enough of technical matter to make the respective works standard books on the sports of which they treat.

The visit of the Australians must, we suppose, be ranked as the chief event of the cricket season; though the team has signally failed to achieve the successes of former elevens; an issue that was in complete accordance with general expectation, as people failed to credit the assertion that the places of Horan, Murdoch, Bannerman, and M'Donnell would be adequately filled. Spofforth had the bad luck to dislocate one of his fingers in midseason, a mishap which, of course, interfered with his bowling. With Spofforth's withdrawal, however, came a great improvement in Garrett, who to a great extent made up for Spofforth's loss. There is no doubt that Murdoch's absence from the team was a misfortune; as he kept all his *confrères* in the best of order, and did much towards securing the many victories our Colonial visitors claimed in former years. Altogether the Australians played 39 matches, one being against odds. Of the remaining 38, no less than 22 were drawn, owing partly to several heavy scores made by English elevens, but to no small extent attributable to late beginnings, long intervals, and the drawing of stumps earlier than was necessary. Sixteen 11 a-side matches were played out, of which the Australians won 9 and lost 7. The three matches against England all resulted in

defeats for the Colonials. Surrey beat them twice, and Kent and Lord Sheffield's eleven once each, on the other hand they beat the Gentlemen of England. Giffen stands at the head of the averages with both bat and ball; he played in 66 innings, made 1,454 runs, giving an average of 25·54. The bowling analysis shows that he delivered 1,726 overs and 2 balls, and took 162 wickets at a cost of 16·160 runs each.

Turning now to county cricket, Nottingham for a third year in succession retains her position at the head of the list, inasmuch as she has not been defeated on one occasion during the past season. It has been the custom with some persons to talk about the contest for the cricket championship, and to style Notts the champion county. It need scarcely be said that there is no such thing as a championship contest at cricket, nor is the title of champion county acknowledged by any county committee, or by the M.C.C. Middlesex and Kent were both strong in batting but weak in bowling; while neither county were invariably able to put their strongest team into the field. Surrey's career was a remarkable one. They played more matches than any other county, viz., 16 of what are called first class matches, out of which number they won 12, and lost 3, one being drawn. Derbyshire were terribly unlucky, as they failed to win even one of the nine matches in which they engaged. In eight of them the county was defeated; the ninth was drawn, *i.e.*, that against Lancashire, a county whose strength in bowling has stood them in good stead the season through. In connection with county cricket, an attempt has been made to draw a distinction between first and second class counties, a distinction that like the so-called "cricket championship" is entirely unauthorised. No definition can be found of what constitutes a first class county. One of the most sensible suggestions was that any county having the courage to tackle a representative M.C.C. eleven should be deemed to be in the first class.

There has during the year been a good deal of pedestrianism worthy of passing notice. The second series of matches between the ex-amateurs George and Myers took place in May last in New York. The three races were at 1,000 yards, three-quarters of a mile, and 1,160 yards respectively. The first two were won by Myers, and the third by George. The Brighton road has long been a favourite ground for all kinds of contests and trials of pace for coaches, horses, pedestrians, and cyclists.

Until this year the best walking time from London to Brighton was made by C. L. O'Malley, who covered the distance in 9 hours 48 minutes, but, on the latest occasion, M'Intosh walked from the Westminster Bridge Station of the Underground Railway to the Aquarium at Brighton in 9 hours 25 minutes, thus beating O'Malley's time by 22 minutes 58 seconds.

The result of the Oxford and Cambridge sports was a somewhat unexpected win for the former university, who carried off six events out of nine. The weather was unfavourable, the company smaller than usual, and, with the exception of the hurdles, the performances were nothing out of the common. That race was won by Croome in excellent style; and his victory must have been pleasing to Mr. C. N. Jackson of Hertford College, who distinguished himself as an athlete in former years, and who coached Croome for this contest. With the exception of the late Mr. T. H. T. Hopkins, of Magdalen College, no "don" has, of late years, taken as great an interest in University athletics as Mr. Jackson has done. A well-authenticated instance of 100 yards having been run in 10 seconds has at last been made by Mr. Wharton; and it only remains to notice briefly the doings of George and Cummings. A second series of matches—similar to those which took place last year—was arranged, and the mile race, the first on the list, which took place on 23rd August, was productive of intense interest. For the greater part of the distance the contest was keen, then Cummings was exhausted, and George ran in an easy winner in the phenomenally good time of 4 minutes $12\frac{3}{4}$ seconds. The 4 miles, run on September 11th, was a great disappointment, as, after a slow run race for $3\frac{1}{2}$ miles, George gave up. The 10 miles race (October 2nd) was more unsatisfactory still, as Cummings, after stopping twice to adjust a bandage, gave up at the end of 5 miles, and George was not required to complete the whole distance.

Wheelmen have upset record after record. For this success they are no doubt indebted to constant improvements made in bicycles and tricycles, and the additional care bestowed upon the laying out of grounds, especially with regard to the banking up at the bends, which enables the cyclist to ride with safety round bends and corners. In July last, Speechly cut the mile record with 2 minutes $34\frac{4}{5}$ seconds. This was apparently likely to stand for some time; but, to the surprise of most men, Furnivall covered a mile in the wonderful time of 2 minutes 30 seconds. It may be stated, however, that this feat was

accomplished at Long Eaton, said to be the fastest ground in England; whereas Speechly's record was made on the Crystal Palace track—one of the slowest. Fenton has ridden 25 miles in 1 hour 14 minutes 38 seconds; while Potter, who at the same time beat all previous records from 28 to 50 miles, covered the latter distance in 2 hours 41 minutes 40$\frac{3}{5}$ seconds.

The efforts of tricyclists, too, have been very successful. Not so very long ago 3 minutes for a mile was considered fast time, whereas the mile record now stands at 2 minutes 41$\frac{2}{5}$ seconds. Gatehouse, of Cambridge, who made the record, also succeeded in doing 20 miles in 59 minutes 10$\frac{3}{5}$ seconds. This fine performance exceeded every previous one from 2 miles to 20, including the late H. L. Cortis's achievement of riding a tricycle 20 miles in an hour.

The Lawn Tennis season has been chiefly remarkable for the advance made by the second class players, who have come much nearer the front rank than they were. This remark applies both to ladies and gentlemen. The lady champion has been beaten; and the match for veterans practically resolved itself into a veteran's championship, the winner hailing from Cheltenham, the practice ground of so many first-class players. That Mr. Renshaw still holds the regular championship goes without saying.

TABLE OF ALL THE PUBLIC GENERAL ACTS

PASSED IN THE TWENTY-THIRD PARLIAMENT AND THE FIRST SESSION OF THE TWENTY-FOURTH PARLIAMENT OF GREAT BRITAIN AND IRELAND.

49 & 50 VICTORIÆ. A.D. 1886.

The Acts are given in the order in which they were passed, the number denoting the chapter. An abstract of those Acts distinguished by an asterisk is given in the pages following this table, which contain a classified epitome of the more important statutes passed during the session.)

1. An Act to make temporary provision for the conduct of the business of the Office of Land Registry.

2. An Act to declare the meaning of Section 11 of the Freshwater Fisheries Act, 1878, so far as regards Eels.

(Section 11 of 41 and 42 Vict. c. 39 as to close time not to apply to eels.)

*3. An Act to remove doubt as to the validity of certain Marriages.

4. An Act to apply the sum of 583,487*l.* 2*s.* 1*d.*, out of the Consolidated Fund for the service of the years ending 31st day of March, 1885 and 1886.

5. An Act for extending, with amendments, to grounds for Drill and other Military Purposes, the Enactments relating to the Acquisition and Regulation of Rifle Ranges.

(Amends and extends 26 & 27 Vict. c. 65.
" " 48 & 49 Vict. c. 36.)

6. An Act to continue the Glebe Loans (Ireland) Act.

(Extends the time for making loans until the 31st December, 1888; and enacts that the "Glebe Loan (Ireland) Act, 1870," and any unrepealed enactments amending or affecting it may be continued after the 31st December, 1888, by the Expiring Laws Continuance Act of that year, and of subsequent years from time to time.)

7. An Act to apply the sum of 12,713,318*l.* out of the Consolidated Fund, to the service of the year ending the 31st day of March, 1887.

*8. An Act to provide, during 12 months, for the Discipline and Regulation of the Army.

(Continues 44 & 45 Vict. c. 58, for specified times.)

*9. An Act to amend the Prisons Act of 1877, so far as regards the Superannuation of Prison Officers.

(Construed as one with cc. 21, 49, 53 of 40 & 41 Vict., so far as it affects any of these Acts.)

10. An Act to repeal the Contagious Diseases Acts, 1866 to 1869.

*11. An Act to provide for the Payment of Compensation for Damage done during a Certain Riot in the Metropolitan District.

12. An Act to amend the Bankruptcy (Office Accommodation) Act, 1885.

(Extends 48 & 49 Vict. c. 47, to enable the Treasury to defray expenses of providing office accommodation for officers performing duties under the Bankruptcy Act, 1883.)

13. An Act to provide for the transfer to the Dominion of Canada of

the Lighthouse at Cape Race, Newfoundland, and its Appurtenances, and for other purposes connected therewith.

*14. An Act for Extending the Hours within which Marriages may be lawfully solemnized.

(Does not extend to Scotland or Ireland.
Amends s. 21 of 4 Geo. 4 c. 76.)

*15. An Act to Amend the Law as to the Rating of Lands occupied for Sporting purposes in Scotland.

(Construes Act along with Valuation Acts, 17 & 18 Vict. c. 91, and any Acts amending the same, and the Poor Law Act, 8 & 9 Vict. c. 83.
Amends s. 42 of 17 & 18 Vict. c. 91.
" s. 1 of 8 & 9 Vict. c. 83.)

*16. An Act to amend the Law in regard to the Vacating of Seats in the House of Commons.

17. An Act to make Temporary Provision for the better Relief of the Destitute Poor in Ireland.

(Extends the power to grant out-door relief in food.
Revives, with modifications, ss. 1 & 2, 46 & 47 Vict. c. 24.
Relief under the Act is not to incapacitate from voting.
Extends the borrowing powers of the Commissioners of Church Temporalities under 32 & 33 Vict. c. 42.)

*18. An Act to grant certain Duties of Customs and Inland Revenue, and to amend the Laws relating to Inland Revenue.

(Continues Import Duties on Tea (6*d.* in the pound).
Amends 32 & 33 Vict. c. 67.)

19. An Act to suspend for a period certain Payments under the National Debt Act, 1881; and to reduce for a like period the Permanent Annual Charge of the National Debt.

20. An Act to amend the Law in respect to the Discovery and Interment of Persons Drowned.

(Amends and extends 48 Geo. 3.)

21. An Act to amend the Burial Grounds (Scotland) Act, 1855.

(Repeals proviso at end of the section in 18 & 19 Vict. c. 68.
" 44 & 45 Vict. c. 27.)

22. An Act to amend the Enactments relating to Offices, Stations, and Buildings for the Metropolitan Police Force.

(This Act and the Metropolitan Police Acts, 10 Geo. 4 c. 44, to 47 & 48 Vict. c. 17, to be cited together as the Metropolitan Police Acts, 1829 to 1886.
Incorporates with it 8 & 9 Vict. c. 18, Lands Clauses Consolidation Act, 1845, and the Acts amending the same: with exceptions.
Repeals 20 & 21 Vict. c. 64, Metropolitan Police Act, 1857; except ss. 11 to 15, both inclusive.)

23. An Act to amend the Companies Acts of 1862, 1867, 1870, 1877, 1879, 1880, and 1883.

(Affects only Companies whose registered offices are in Scotland.
Construes Act as one with 25 & 26 Vict. c. 89;
" " " 30 & 31 Vict. c. 131;
" " " 40 & 41 Vict. c. 26;
" " " 42 & 43 Vict. c. 76;
" " " 43 Vict. c. 19;
" " " 46 & 47 Vict. c. 28;
" " " 33 & 34 Vict. c. 104;
} So far as consistent with the tenor thereof.)

24. An Act to continue and amend for a further limited period the Peace Preservation (Ireland) Act, 1881.

(Continues 44 & 45 Vict. c. 5.)

25. An Act for giving facilities for the Care, Education, and Training of Idiots and Imbeciles.

(Not to extend to Scotland or Ireland.
To begin from December 31st, 1886.)

26. An Act to apply a Sum out of the Consolidated Fund to the service of the year ending on the 31st day of March, 1887, and to appropriate the Supplies granted in this Session of Parliament.

(Issues 26,993,652*l.* out of the Consolidated Fund.)

*27. An Act to amend the Law relating to the Guardianship and Custody of Infants.

(Applies 12 Car. 2, c. 24.
„ 14 & 15 Car. 2, c. 19, of the Irish Parliament, in Ireland.)

28. An Act to amend the Law relating to Bankruptcy, so far as relates to Agricultural Labourers' Wages.

(Does not extend to Scotland or Ireland.)

*29. An Act to amend the Law relating to the Tenure of Land by Crofters in the Highlands and Islands of Scotland, and for other purposes relating thereto.

(The Act not to affect 46 & 47 Vict. c. 62; Agricultural Holdings (Scotland) Act.
Applies 27 & 28 Vict. c. 53; 44 & 45 Vict. c. 33; Summary Jurisdiction Acts.
„ 46 & 47 Vict. c. 62, s. 27.)

30. An Act to amend the Patriotic Fund Acts, 1867 and 1881.

(The Patriotic Fund Act, 1867, 30 & 31 Vict. c. 98, and the Patriotic Fund Act, 1881; 44 & 45 Vict. c. 46, and this Act may be cited together as the Patriotic Fund Acts, 1867 to 1886.)

31. An Act to remove Doubts respecting the sitting and acting of the Chancellor and other Officers of the University of Oxford as Justices of the Peace.

32. An Act to amend the Contagious Diseases (Animals) Act, 1878.

(The Act, so far as is consistent with its tenor, to be construed as one with 41 & 42 Vict. c. 74; Contagious Diseases (Animals) Act, 1878.
Amends 41 & 42 Vict. c. 74, ss. 17, 23, for contracting limits of infected place.
„ ss. 20, 26, as to declaration of freedom from infection.
„ s. 22, as to inquiry respecting foot and mouth disease.
„ s. 32, for extending definition of animals.
„ s. 39, as to providing sheds, &c.
„ s. 59, as to returns to Parliament.
Repeals s. 29, and provision as to slaughter of animals.
Transfers to the Local Government Board the powers of the Privy Council under s. 34.)

*33. An Act to amend the Law respecting International and Colonial Copyright.

(This Act, and the International Copyright Acts, to be construed and cited together as the International Copyright Acts, 1844 to 1886.
Repeals ss. 14, 17, 18, 7 & 8 Vict c. 12.
„ ss. 1 to 5 (both inclusive), 15 & 16 Vict., c. 12.
„ 25 & 26 Vict. c. 68, s. 12, so far as it incorporates any enactment repealed by this Act.)

*34. An Act to extend the time for the Repayment of Loans granted by the Governors of the Bounty of Queen Anne for the Augmentation of the Maintenance of the Poor Clergy to Incumbents of Benefices.

35. An Act respecting the Representation in the Parliament of

Canada of Territories which for the time being form part of the Dominion of Canada, but are not included in any Province.

(This Act and 30 & 31 Vict. c. 3, British North America Act, 1867, and 34 & 35 Vict. c. 28, to be cited together as British North America Acts, 1867 to 1886.)

36. An Act to provide for the determination of the Acts respecting the Sale and Transfer of Incumbered Estates in the West Indies.

(Provides for determination of 21 & 22 Vict. c. 96.
" " 25 & 26 Vict. c. 45.
" " 27 & 28 Vict. c. 108.)

37. An Act to remove certain Doubts respecting the construction of the Patents, Designs, and Trade Marks Act, 1883, so far as respects the Drawings by which Specifications are required to be accompanied, and as respects Exhibitions.

(Construed as one with 46 & 47 Vict. c. 57.
" " 48 & 49 Vict. c. 63.)

*38. An Act to provide Compensation for Losses by Riots.

(Does not extend to Scotland or Ireland.
Repeals 7 & 8 Geo. 4, c. 31.
" 2 & 3 Will. 4, c. 72.
" 17 & 18 Vict., c. 104 (Merchant Shipping Act, 1854), s. 477, from "in England" down to "riotous assemblage or as near thereto as circumstances permit," both inclusive.)

39. An Act to amend the Law relating to Salmon and Freshwater Fisheries.

(Construed as one with 24 & 25 Vict. c. 109;
" " 26 Vict. c. 10;
" " 28 & 29 Vict. c. 121;
" " 33 & 34 Vict. c. 33;
" " 36 & 37 Vict. c. 71;
" " 39 & 40 Vict. c. 19, 34;
" " 40 & 41 Vict. c. 65, 98;
" " 41 & 42 Vict. c. 39;
" " 42 & 43 Vict. c. 26;
" " 47 Vict. c. 11;
" " 49 Vict. c. 2;
viz., the Salmon and Freshwater Fisheries Acts.)

40. An Act to amend the Coal Mines Regulation Act, 1872.

(Repeals part of s. 18, 35 & 36 Vict. c. 76.
Construed as one with 35 & 36 Vict. c. 76.)

*41. An Act to alter certain Duties of Customs and to amend the Laws relating to the Customs, and for other purposes.

(Applies s. 42, 39 & 40 Vict. c. 36, to the prohibition of importation of foreign coin.)

42. An Act for amending the Law as to the appointment of Revising Barristers in England.

(Construed as one with 6 & 7 Vict. c. 18; Parliamentary Voters Registration Act, 1843.
Senior Judge actually travelling to appoint Revising Barristers.
Act to continue in force only until December 31st, 1887.)

43. An Act to amend the Law relating to the Appointment of Revising Barristers and the Attendance of County Officers at Revision Courts in Ireland.

Empowers the Lord Lieutenant to appoint additional Revising Barristers.

44. An Act further to amend the Acts relating to the raising of Money by the Metropolitan Board of Works; and for other purposes.

(To have effect as one with the Metropolitan Board of Works (Loans) Act, 1869 to 1871, and the Metropolitan Board of Works (Money) Acts, 1875 to 1885.
Amends 48 & 49 Vict. c. 50, s. 9, sub. ss (*a*), (*c*), (*d*), (*e*), (*f*), (*g*), (*i*), and (L).
,, 48 & 49 Vict. c. 50, ss. 11, 12.
ss. 18 and 19, 21 and 22 of 46 & 47 Vict. c. 27, to apply to Metropolitan Bills under this Act.
32 & 33 Vict. c. 102, s. 38, not to extend to moneys raised under this Act.
Incorporates ss. 27 to 43 of 48 & 49 Vict. c. 50, as to unclaimed stock and dividends.)

45. An Act to grant Money for the purpose of Loans by the Public Works Loan Commissioners, the Commissioners of Public Works in Ireland, the Irish Land Commissioners, and the Fishery Board for Scotland, and to amend the Acts and make other provisions relating to the above-mentioned Commissioners and Board.

(Applies 38 & 39 Vict. c. 89, and 40 & 41 Vict. c. 27, as amended by 42 & 43 Vict. c. 77.)

46. An Act to amend the Act of the sixth and seventh years of William the Fourth, c. 108.

(Public Works Loans (Tramways Ireland) Act, 1886.
Amends s. 5 of 6 & 7 Will. 4, c. 108.)

47. An Act to appoint Additional Commissioners for executing the Acts for granting a Land Tax and other Rates and Taxes.

*48. An Act to amend the Medical Acts.

(Construed as one with 21 & 22 Vict. c. 90, and any Acts amending the same.
Medical Act, 1858.
Repeals ss. 4 and 5 of 21 & 22 Vict. c. 90.
,, 46 & 47 Vict. c. 19; Medical Act (1858) Amendment Act, 1883.
,, s. 31 of 21 & 22 Vict. c. 90.
,, 31 & 32 Vict. c. 29.)

49. An Act to empower the Admiralty to form a Harbour of Refuge at Peterhead, in the county of Aberdeen, and the execute and maintain Breakwater Piers, and other works and conveniences in connection therewith; and for other purposes.

(Incorporates Act with Lands Clauses Consolidation Act (Scotland), 1845 (excepts ss. 142, 143), and Lands Clauses Consolidation Acts Amendment Act, 1860, and Harbour, Docks, and Piers Clauses Act, 1847 (excepts certain provisions as to accounts to be kept of the rates).)

50. An Act to amend the Law relating to the terms of removal from houses in Scotland.

(Extends to Scotland only.
Repeals 44 & 45 Vict. c. 39; Removal Terms (Burghs) (Scotland) Act, 1881.)

51. An Act to make provision for the Borrowing of Money by parochial Boards, and for other purposes relating to the Relief of the Poor in Scotland.

(Partially repeals provisions in 19 & 20 Vict. c. 117.)

*52. An Act to amend the Law relating to the Maintenance of Married Women who shall have been deserted by their Husbands.

(Does not extend to Scotland.)

53. An Act to amend the Law relating to Sea Fishing Boats in Scotland.

(Applies 31 & 32 Vict. c. 45.
,, only to Scotland.)

*54. An Act to amend the Tithe Commutation Acts as to Extraordinary Tithe Rentcharge on Hop Grounds, Orchards, Fruit Planta-

tions, and Market Gardens, and to provide for fixing the capital value thereof and the redemption of the same.

*55. An Act to limit the Hours of Labour of Children and Young Persons in Shops.

(Applies 41 & 42 Vict. c. 16 (Factory and Workshop Act, 1878), so far as relates to summary proceeding under that Act.)

*56. An Act for the Protection of Children against the Sale to them of Intoxicating Liquors.

(Does not extend to Scotland.
Construed as one with the Licensing Acts, 1872-1874, for the purposes of all legal proceedings required to be taken.)

57. An Act to amend the provisions of the Parliamentary Elections (Returning Officers) Act, 1875.

(Read as one with the Parliamentary Elections (Returning Officers) Acts, 1878.)

58. An Act to regulate the Expenses and to control the Charges of Returning Officers at Parliamentary Elections in Scotland.

(Extends to Parliamentary Elections only in Scotland.
Construed as one with Ballot Act, 1872.
" " Parliamentary Elections Returning Officers' Expenses (Scotland) Act, 1878.
" " Parliamentary Elections (Returning Officers) Act, 1885.
Corrupt and Illegal Practices Prevention Act, 1883.
Provisions of subs. 5 of s. 29 of 46 & 47 Vict. c. 51, not to apply where an application is made for the taxation of an account.)

59. An Act to amend the Labourers (Ireland) Acts.

(Construed as one with 46 & 47 Vict. c. 60; 48 & 49 Vict. c. 77; } so far as is consistent with the Acts.
Amends 46 & 47 Vict. c. 60, s. 6.
" " " s. 5, as to certificate of Sanitary Officer.
" 48 & 49 Vict. c. 77, ss. 2, 4.
44 & 45 Vict. c. 49, Land Law (Ireland) Act, 1881, not to apply to temporary letting of allotments.
Repeals 48 & 49 Vict. c. 77, s. 6.)

60. An Act to apply a Sum out of the Consolidated Fund to the service of the year ending on the 31st day of March, 1887, and to appropriate the Supplies granted in this Session of Parliament.

*61. An Act to repeal the enactments authorising the issue out of the Consolidated Fund of money for Secret Service within the United Kingdom.

(Repeals parts of 22 Geo. 3, c. 82, and 1 & 2 Vict. c. 2.)

62. An Act to amend the Submarine Telegraph Act, 1885.

63. An Act for facilitating the proceedings of the Commissioners appointed to hold a Court of Inquiry respecting Riots and Disturbances at Belfast.

64. An Act to continue various expiring Laws.

ABSTRACTS OF IMPORTANT ACTS

PASSED IN THE TWENTY-THIRD PARLIAMENT OF GREAT BRITAIN AND IRELAND.

1. THE CHURCH.

[49 & 50 Victoriæ, cap. 34.—25th June, 1886.]

An Act to extend the time for the Repayment of Loans granted by the Governors of the Bounty of Queen Anne for the Augmentation of the Maintenance of the Poor Clergy to Incumbents of Benefices.

Short Title: "Incumbents of Benefices Loans Extension Act, 1886."

The Act provides that the Governors of the Bounty of Queen Anne, when the income of a benefice has been materially diminished by the reduction in letting value of any glebe land may, by resolution passed before the 31st of December, 1887, with the consent of the patron, extend the term fixed for the repayment of money lent by them to the incumbent before the 1st of January, 1881, for any period not exceeding twenty years; and make an equivalent reduction of the amount of the annual instalments of principal and interest.

2. LITERATURE AND ART.

[49 & 50 Victoriæ, cap. 33.—25th June, 1886.]

An Act to amend the Law respecting International and Colonial Copyright.

Short Title: "International Copyright Act, 1886."

The preamble declares the expediency of enabling Her Majesty to accede to the convention agreed to at Berne in September, 1885. Section 1 provides that this Act and the International Copyright Acts shall be construed together, and may be cited together as "The International Copyright Acts, 1844 to 1886." Section 2 provides that an Order in Council under the International Copyright Acts may extend to all the several foreign countries named or described therein: the order may exclude or limit the rights conferred by the International Copyright Acts in the case of authors who are not subjects or citizens of the foreign countries named in that or any other order, and if the order contains such limitation and the author of a literary or artistic work first produced in one of those foreign countries is not a British subject, nor a citizen of any of the foreign countries named, the publisher of such work, unless the order otherwise provides, shall for the purpose of any legal proceedings in the United Kingdom for protecting any copyright in such work be

entitled to such copyright as if he were the author, but this enactment shall not prejudice the rights of such author and publisher as between themselves: the International Copyright Acts and an order made thereunder shall not confer on any person any greater right or longer term of copyright in any work than that enjoyed in the foreign country in which such work was first produced. Section 3 enacts that the order may provide for determining the country in which a literary or artistic work first produced simultaneously in two or more countries, is to be deemed, for the purpose of copyright, to have been first produced, and for the purposes of this section "country" means the United Kingdom, and a country to which an order under the said Acts applies. Where a work produced simultaneously in the United Kingdom and in some foreign country or countries is by virtue of an order deemed for the purpose of copyright to be first produced in one of the said foreign countries and not in the United Kingdom, the copyright in the United Kingdom shall be such only as exists by virtue of production in the foreign country. Section 5 provides that where a work being a book or dramatic piece is first produced in a foreign country to which an order applies, the author or publisher, as the case may be, shall, unless otherwise directed by the order, have the same right of preventing the production in and importation into the United Kingdom of any translation not authorised by him as he has of preventing that of the original work: Provided that if after the expiration of ten years, or any other term prescribed by the order, next after the end of the year in which the work, or in the case of a book published in numbers each number of the book, was first produced, an authorised translation in the English language of such work or number has not been produced, the right to prevent the production in and importation into the United Kingdom of an unauthorised translation of such work shall cease. The law relating to copyright, including this Act, shall apply to a lawfully produced translation. Such of the provisions of "The International Copyright Act, 1852," relating to translations as are unrepealed by this Act shall apply as if they were re-enacted. Section 6 provides that where an Order in Council is made under the International Copyright Acts with respect to any foreign country, the author and publisher of any work first produced before the date at which such order comes into operation shall be entitled to the same rights and remedies as if the Acts and this Act and the order had applied to the foreign country at the date of the production: Provided that where any person has before the date of the publication of an Order in Council lawfully produced any work in the United Kingdom, nothing in this section shall diminish or prejudice any interests arising from such production which are subsisting and valuable at the said date. Section 7 provides that an extract from a register or a certificate, authenticated by the official seal of a Minister of State of a foreign country, or by the official seal or the signature of a British diplomatic or consular officer acting in such country, shall be sufficient evidence of foreign copyright. Section 8 provides for the application of the Copyright Acts to the colonies, and enacts that nothing in the Copyright Acts or this Act shall prevent the passing in a British possession of any Act or ordinance respecting the copyright within the limits of

such possession of works first produced in that possession. Section 9 provides that where it appears to Her Majesty expedient that an Order in Council made after the passing of this Act as respects any foreign country, should not apply to any British possession, it shall be lawful to declare that such order shall not apply to such British possession, except so far as is necessary for preventing any prejudice to any rights acquired previously to the date of such order. Section 11 defines the expression "literary and artistic work" to mean every book, print, lithograph, article of sculpture, dramatic piece, musical composition, painting, drawing, photograph, and other work of literature and art to which the Copyright Acts or the International Copyright Acts, as the case requires, extend. The expression "author" to mean the author, inventor, designer, engraver, or maker of any literary or artistic work, and includes any person claiming through the author; and in the case of a posthumous work to mean the proprietor of the manuscript and any person claiming through him; and in the case of an encyclopædia, review, magazine, periodical work, or work published in a series of books or parts to include the proprietor, projector, publisher, or conductor. The expression "British possession" to include any part of Her Majesty's dominions exclusive of the United Kingdom. Section 12 repeals sections 14, 17, 18 of 7 & 8 Vict., c. 12; sections 1 to 5 (both inclusive), and 8 and 11 of 15 & 16 Vict., c. 12; and so much of 12 of 25 & 26 Vict., c. 68, as incorporates any enactment repealed by this Act, provided the repeal shall not prejudice any rights acquired previously to such repeal.

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3. PROFESSIONS, TRADE, AND COMMERCE.

[49 & 50 Victoriæ, cap. 48.—25th June, 1886.]

An Act to amend the Medical Act.

Short Title: "Medical Act, 1886."

By section 1 this Act is to be construed as one with the Medical Acts. Section 2 states the necessity of a qualifying examination in medicine, surgery, and midwifery before registration. Section 3 enumerates the medical authorities by whom qualifying examinations shall be held. (*a.*) Any university in the United Kingdom or any medical corporation, legally qualified at the passing of this Act to grant diplomas in respect of medicine and surgery; (*b.*) Any combination of two or more medical corporations in the same part of the United Kingdom who may agree to hold a joint examination, and of whom one at least is capable of granting such diplomas in respect of medicine, and one at least is capable of granting such diplomas in respect of surgery; (*c.*) Any combination of any university as aforesaid with any other such universities, or of any such universities with a medical corporation, the bodies forming such combination being in the same part of the United Kingdom. It provides that the standard

of proficiency required from candidates at the qualifying examinations shall be such as sufficiently to guarantee the possession of the knowledge and skill requisite for the efficient practice of medicine, surgery, and midwifery; and that inspectors of examinations shall be appointed by the General Council. Section 4 provides for the withdrawal from the medical authorities of the right to hold qualifying examinations if at any time it appears to the General Council that the standard of proficiency in medicine, surgery, and midwifery is insufficient. The withdrawal to be by order of the Privy Council. During the continuance of any such order the examinations held by the body or bodies to which it relates shall not be deemed qualifying examinations under this Act, and any diploma granted to persons on passing such examinations shall not entitle them to be registered under the Medical Acts. Section 6 provides that on and after the appointed day a registered medical practitioner shall, save as in this Act mentioned, be entitled to practise medicine, surgery, and midwifery in the United Kingdom, and (subject to any local law) in any other part of Her Majesty's dominions, and to recover in due course of law any expenses or any fees to which he may be entitled, unless he is a fellow of a College of Physicians, the fellows of which are prohibited by byelaw from recovering, in which case such prohibitory byelaw, so long as it is in force, may be pleaded in bar of any legal proceeding. Section 7 provides that the General Council shall consist of five persons nominated from time to time by Her Majesty, with the advice of Her Privy Council, three of whom shall be nominated for England, one for Scotland, and one for Ireland: one person chosen by *the Royal College of Physicians of London; the Royal College of Surgeons of England; the Apothecaries Society of London; the University of Oxford; the University of Cambridge; the University of London; the University of Durham; the Victoria University, Manchester; the Royal College of Physicians of Edinburgh; the Royal College of Surgeons of Edinburgh; the Faculty of Physicians and Surgeons of Glasgow; the University of Edinburgh; the University of Glasgow; the University of Aberdeen; the University of St. Andrews; the King's and Queen's College of Physicians in Ireland; the Royal College of Surgeons in Ireland; the Apothecaries Hall of Ireland; the University of Dublin; the Royal University of Ireland;* three persons elected by the registered medical practitioners resident in England: one person elected by the registered medical practitioners resident in Scotland: one person elected by the registered medical practitioners resident in Ireland. By Section 8 the members of the General Council representing the registered medical practitioners resident in the several parts of the United Kingdom shall themselves be registered medical practitioners; elected to hold office for the term of five years, and shall be capable of re-election. The President of the General Council, or any other person whom the General Council may from time to time appoint, shall be the returning officer for the purpose of elections of direct representatives. The election shall be conducted in such manner as may be provided by regulations to be made by the Privy Council, provided (*a*) the nomination be in writing, and the nomination paper of each candidate be signed by not fewer than twelve registered medical practitioners; and (*b*) the election be conducted by voting

papers to be forwarded by post to each registered medical practitioner, and any registered medical practitioner entitled to vote may vote for as many candidates as there are representatives to be elected. Section 10 provides for the revision of the constitution of the General Council from time to time.

PART II.—*Refers to Colonial and Foreign Practitioners.*

Section 11 provides that on and after the prescribed day where a person shows to the satisfaction of the registrar of the General Council that he holds some recognised colonial medical diploma granted to him in a British possession to which this Act applies, and that he is by law entitled to practise in such British possession, he shall, on application to the registrar, and on payment of a fee not exceeding 5*l.*, be entitled, without examination in the United Kingdom, to be registered as a colonial practitioner in the medical register: Provided that he proves to the satisfaction of the registrar (1) that the diploma was granted to him at a time when he was not domiciled in the United Kingdom, or in the course of a period of not less than five years, during the whole of which he resided out of the United Kingdom, or that he has continuously practised either in the United Kingdom or elsewhere for a period of not less than ten years immediately preceding the prescribed day. Section 12 provides in a similar way for the registration of foreign practitioners with recognised diplomas, provided they are not British subjects. Section 13 provides that the medical diploma of a colonial and foreign practitioner shall be such as may be recognised for the time being by the General Council as furnishing a sufficient guarantee of the possession of the requisite knowledge and skill for the efficient practice of medicine, surgery, and midwifery. Where the General Council have refused to recognise any colonial or foreign medical diploma, the Privy Council, on application being made to them, may, if they think fit, after communication with the General Council, order the General Council to recognise the diploma. Reason for the refusal, if made, of registration as a colonial or foreign practitioner on any other ground than that the medical diploma is not one recognised, must, if required, be stated in writing, and the person so refused registration may appeal to the Privy Council. A person may, if so entitled under this Act, be registered both as a colonial and a foreign practitioner. Section 14 provides that the medical register shall contain a separate list of the names and addresses of the colonial and foreign practitioners. Section 17 gives power to Her Majesty in Council to define the colonies and foreign countries to which this part of the Act applies. Under Section 18 nothing in "The Medical Act, 1858," shall prevent a person holding a medical diploma entitling him to practise medicine or surgery in a British possession to which this Act applies from holding an appointment as a medical officer in any vessel registered in that possession.

PART III.—*Contains Miscellaneous Provisions.*

Section 19 provides that in default of the General Council to secure the maintenance of a sufficient standard of proficiency at any

qualifying examinations, the Privy Council may themselves exercise any power or do any act or thing vested in or authorised to be done by the General Council. By section 20 the diploma of member of the King's and Queen's College of Physicians in Ireland, and the degree of Master in Obstetrics of any university in the United Kingdom, shall be deemed to be added to the qualifications described in Schedule A to "The Medical Act, 1858." Section 21 provides for the registration of diplomas in sanitary science. By section 22 all powers vested in the Privy Council by the Medical Acts or this Act may be exercised by any two or more of the Lords and others of the Privy Council. Section 24 provides that this Act shall not increase or diminish the privileges in respect of his practice of any person who, on the day preceding the appointed day, is a registered medical practitioner. Section 25 provides that any person who at the time of the repeal of any enactment repealed by this Act was, in pursuance of such enactment, legally entitled to practise as a medical practitioner in any colony or part of Her Majesty's dominions other than the United Kingdom, shall after the date of such repeal continue to be so entitled if he would have been entitled if no such repeal had taken place. Section 26 repeals so much of section 4 of "The Dentists Act, 1878," as provides that a prosecution for any of the offences mentioned in that Act shall not be instituted by a private person, except with the consent of the General Council or of a branch council, and a prosecution for any such offences may be instituted by a private person accordingly. Notwithstanding anything in section 5 of "The Dentists Act, 1878," the rights of any person registered under "The Dentists Act, 1878," to practise dentistry or dental surgery in any part of Her Majesty's dominions other than the United Kingdom shall be subject to any local law in force in that part. Section 28 of "The Dentists Act, 1878," shall not be in force unless declared to be so by Order in Council, and save as in this Act mentioned "The Dentists Act, 1878," shall not be affected by this Act. Section 27 defines the expression "British possession" as any part of Her Majesty's dominions exclusive of the United Kingdom, but inclusive of the Isle of Man and the Channel Islands: "local law" as an Act or Ordinance passed by the legislature of a British possession: "the appointed day" as the 1st of June, 1887, or such other day in June appointed by the Privy Council: "medical corporation" as any body in the United Kingdom, other than a university, for the time being competent to grant diplomas conferring on the holder thereof, if he has passed a qualifying examination, the right of registration under the Medical Acts: "medical diploma" as a diploma granted in respect of medicine, surgery, and midwifery, or any of them, or any branch of them: "the Medical Acts" as "The Medical Act, 1858," 21 & 22 Vict., c. 90, and any Acts amending the same, passed before the passing of this Act. Section 28 repeals sections 4, 5, 24, and 31 of 21 & 22 Vict., c. 90; 46 & 47 Vict., c. 19; and 31 & 32 Vict., c. 29, provided that the repeal shall not affect anything done or suffered, or any right or title acquired or accrued, before such repeal takes effect, or any remedy, penalty, or proceeding in respect thereof.

[49 & 50 Victoriæ, cap. 55.—25th June, 1886.]

An Act to Limit the Hours of Labour of Children and Young Persons in Shops.

Short Title: "Shop Hours Regulation Act, 1886."

By section 2 the Act is to come into operation on the 1st of November, 1886, and continue in force until the 31st of December, 1888, and the end of the then next session of Parliament. Section 3 enacts that a young person shall not be employed in a shop for a longer period than 74 hours, including meal times, in any one week; and shall not to the knowledge of his employer be employed in a shop if previously on the same day employed in any factory or workshop, as defined by "The Factory and Workshop Act, 1878," for the number of hours permitted by the said Act or for a longer period than will complete such number of hours. Section 4 provides that in every shop in which young persons are employed a notice shall be kept exhibited by the employer in a conspicuous place stating the number of hours in the week during which they may lawfully be employed therein. Section 5 imposes a fine not exceeding 1*l.* for each person employed in contravention to the Act. Section 6 provides that where the employer of a young person is charged with an offence against this Act, he shall be entitled to have any other person whom he charges as the actual offender brought before the court; and if the employer proves that he has used due diligence to enforce the execution of the Act, and that the other person has committed the offence without his knowledge or consent, the employer shall be exempt from any fine. By section 7 all offences under this Act shall be prosecuted in like manner as offences under "The Factory and Workshop Act, 1878." Section 8 defines "shop" to mean retail and wholesale shops, markets, stalls, and warehouses in which assistants are employed for hire, including licensed public houses and refreshment houses of any kind. "Young person" to mean a person under the age of 18 years. Section 9 provides that nothing in the Act shall apply to shops where the only persons employed are members of the same family dwelling there, or to members of the employer's family dwelling in a house to which the shop is attached.

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4. THE ARMY.

[49 Victoriæ, cap. 8.—16th April, 1886.]

An Act to provide, during twelve months, for the Discipline and Regulation of the Army.

Short Title: "Army (Annual) Act, 1886."

Section 4 enacts that whereas under section 41 of "The Army Act, 1881," sub-section 5, a person subject to military law is liable, if convicted by court-martial of any offence not before in the said Act

particularly specified, which when committed in England is punishable by the law of England, to suffer such punishment as in the said section mentioned: the words "not before in this Act particularly specified" shall be omitted from sub-section 5 of section 41 of "The Army Act, 1881." Section 5 enacts that whereas in some cases the conviction by court-martial of a person subject to military law is valid, but the sentence, by reason of being in excess of what is authorised by law or otherwise, is invalid, and doubts have arisen as to whether the said rules can extend to the making of provisions for the passing of a valid sentence in such a case. In sub-section 1 of section 70 of "The Army Act, 1881," there shall be inserted after the words "revision of the findings and sentences of court-martial" the words "and enabling the authority having power under section 57 of this Act to commute sentences to substitute a valid sentence for an invalid sentence of a court-martial." Section 6 amends section 84 of 44 & 45 Vict., c. 58, as to re-engagement of soldiers, and enacts that in section 84 of "The Army Act, 1881," the words "after the expiration of nine years from the date of his original term of enlistment" shall be substituted for the words "within three years of the completion of his original term of enlistment." Section 7 amends section 179 (12) of 44 & 45 Vict., c. 58, and section 7 of 47 & 48 Vict., c. 8, as to the Royal Marines; adding to section 179 of "The Army Act, 1881," at the end of the twelfth sub-section, the following enactment:—And save that if any regulations so made provide for the transfer to the Royal Marines of men belonging to any other part of Her Majesty's regular forces, a man belonging to such part may, with his consent, be so transferred in accordance with the said regulations, and, subject to those regulations, shall become a man of the Royal Marines in like manner, so nearly as circumstances admit, as if he had been enlisted in pursuance of the Acts relating to the Royal Marines. Section 8 amends section 182 of 44 & 45 Vict., c. 58, respecting special provisions as to warrant officers, and enacts that in sub-section 2 of section 182 of "The Army Act, 1881," the following words—"Without taking away any power of a court-martial, other than a district court-martial, he may be sentenced by any court-martial having power to try him to such forfeitures, fines, and stoppages as are allowed by this Act either in addition to or without any other punishment, and also to be dismissed from the service," shall be substituted for the words "without prejudice to any other power of a court-martial he may be sentenced by a court-martial other than a regimental court-martial to be dismissed from the service." Section 9 amends sections 179 and 186 of 44 & 45 Vict., c. 58, as to the reference to "The Naval Discipline Act," and provides that in "The Army Act, 1881," the figures "1886" shall be omitted after the words "Naval Discipline Act," wherever these words occur.

5. SUPPLY AND FINANCE.

[49 Victoriæ, cap. 18.—4th June, 1886.]

An Act to grant certain Duties of Customs and Inland Revenue, and to amend the laws relating to Inland Revenue.

Short Title : "Customs and Inland Revenue Act, 1886."

Section 2 continues the duty on tea imported into Great Britain or Ireland at 6*d.* in the pound. Section 3 exempts from duty private brewers occupying small houses of an annual value not exceeding 8*l.*, and brewing beer solely for their own domestic use. Part 2 provides for the income tax for the year which commenced on the 6th day of April, 1886, at 8*d.*, for every 20*s.* of the annual value or amount of property, profits, and gains chargeable under Schedules (A), (C), (D), or (E) of the Act 16 & 17 Vict., c. 34; and for every 20*s.* of the annual value of the occupation of lands, tenements, hereditaments, and heritages chargeable under Schedule (B) of the said Act in England the duty of 4*d.*, in Scotland and Ireland respectively the duty of 3*d.* Section 5 enacts that all such provisions contained in any Act relating to income tax as were in force on the 5th day of April, 1886, shall have full force and effect with respect to the duties of income tax granted by this Act, so far as the same shall be consistent with the provisions of this Act. Section 6 enacts that where any person liable to pay any rent, interest, annuity, or other annual payment in the course of the year beginning on the 6th day of April, 1886, shall, on making any such payment prior to the passing of this Act, have not made any deduction or have made an insufficient deduction in respect of the duty of income tax hereby granted, he shall be authorised to make the deduction or make up the deficiency on the occasion of the next payment in addition to any other deduction which he may by law be authorised to make. (2.) The charge or deduction of the duty of income tax at a rate not exceeding the rate hereby granted in case of any payment made in the course of the said year prior to the passing of this Act shall be deemed to have been a legal charge or deduction. Section 7 provides for the assessment of income tax under schedules (A) and (B) and of the inhabited house duties for the year 1886–7. It constitutes the inspectors or surveyors of taxes the assessors of the duties, and, in lieu of the poundage by law granted to be divided between the assessors and collectors in regard to such duties, authorises a poundage of three half-pence to the collectors. The sum charged as the annual value of any property in the assessment of income tax thereon for the year which commenced on 6th April, 1885, and the sum charged as the annual value of every inhabited house in the assessment made thereon for the same year as respects England, and as respects Scotland for the year which commenced on May 25, 1885, are to be taken as the annual value of such property or of such inhabited house, for assessment and charge of the duties of income tax hereby granted or of the duties on inhabited houses, to all intents and purposes as if such sum had been estimated to be the annual value in conformity with the provisions in that behalf contained in the Acts relating to income tax and the duties on

inhabited houses respectively. Section 8 enacts that the provisions of Income Tax Acts shall apply to duties to be granted for the succeeding year.

[49 & 50 Victoriæ, cap. 41.—25th June, 1886.]

An Act to alter certain duties of Customs and to amend the laws relating to the Customs, and for other purposes.

Short Title: "Customs Amendment Act, 1886."

Section 1 enacts that on a day to be fixed by the Commissioners of the Treasury, the duties of Customs now payable on wine shall cease, and in lieu thereof there shall be charged and paid the duties following:—Wine not exceeding 30 degrees of proof spirit, the gallon, 1*s.*; wine exceeding 30 but not exceeding 42 degrees of proof spirit, the gallon, 2*s.* 6*d.*; and for every degree or part of a degree beyond the highest above charged, an additional duty, the gallon, 3*d.* In this section the word "degree" does not include fractions of the next higher degree; and "wine" includes lees of wine. Section 2 provides for the prohibition of importation of foreign coin by proclamation, and while such proclamation is in force the coins therein specified shall be goods prohibited to be imported as if they were specified in section 42 of "The Customs Consolidation Act, 1876," 39 and 40 Vict., cap. 36.

[50 Victoriæ, cap. 61 (2).—25th September, 1886.]

An Act to repeal the Enactments authorising the Issue out of the Consolidated Fund of Money for Secret Service within the United Kingdom.

Short Title: "Secret Service Money (Repeal) Act, 1886."

The preamble declares the expediency of repealing a portion of 22 Geo. III, c. 82, and the section 1 & 2 Vict., c. 2, which authorises the issue of 10,000*l.* in every year, to be applied to the same purposes as the 10,000*l.* a-year, formerly charged on the 4th class of the Civil List for Home Secret Service, has heretofore been applied. Section 2 repeals part of section 24 of 22 Geo. III, c. 82, and section 15 of 1 & 2 Vict., c. 2, without prejudice to anything heretofore done in pursuance thereof.

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6. LAW AND JUSTICE.

[49 & 50 Victoriæ, cap. 27.—25th June, 1886.]

An Act to amend the Law relating to the Guardianship and Custody of Infants.

Short Title: "Guardianship of Infants Act, 1886."

Section 1 enacts that this Act may be cited as "The Guardianship of Infants Act, 1886." Section 2 provides that on the death of the father,

the mother is to be guardian alone or jointly with others. Section 3 enacts that the mother may appoint a guardian after the death of herself and the father of the infant (if such infant be then unmarried), and where guardians are appointed by both parents they shall act jointly. The mother of any infant may nominate guardians of such infant after her death jointly with the father of the infant, and the court, after her death, if it be shown to the satisfaction of the court that the father is for any reason unfitted to be the sole guardian of his children, may confirm the appointment. In the event of guardians being unable to agree upon a question affecting the welfare of an infant, any of them may apply to the court for its direction, and the court may make such order regarding the matters in difference as it shall think proper. Section 4 gives to guardians the same powers as any guardian has in England under the Act 12 Charles II, cap. 24, or in Ireland under the Act of the Irish Parliament, 14 and 15 Charles II, cap. 19, or otherwise. By Section 5 the court may, on application of the mother, make orders as to custody. Section 6 gives power to the court to remove guardians. Section 7 provides that in any case where a decree for judicial separation, or a decree either nisi or absolute for divorce, shall be pronounced, the Court pronouncing such decree may thereby declare the parent by reason of whose misconduct such decree is made to be a person unfit to have the custody of the children (if any) of the marriage; and the parent so declared to be unfit shall not, upon the death of the other parent, be entitled as of right to the custody or guardianship of such children. Section 8 provides that in the application of this Act to Scotland the word guardian shall mean tutor, and the word infant shall mean pupil. Section 9 defines the expression "the Court" to mean—in England the High Court of Justice or the county court of the district in which the respondent or respondents or any of them may reside: in Ireland the High Court of Justice or the county court of the district in which the respondent or respondents or any of them may reside: in Scotland the Court of Session or the sheriff court within whose jurisdiction the respondent or respondents or any of them may reside. Section 10 provides for the removal of proceedings and appeals to the High Court of Justice in England and Ireland, and to the Court of Session in Scotland, in the latter case, in the manner provided by and subject to the conditions prescribed by the ninth section of "The Sheriff Courts (Scotland) Act, 1877." Section 12 enacts that in Scotland tutors being guardians appointed to administer the estate of any pupil shall be subject to the provisions of the Act 12 and 13 Vict., "An Act for the better protection of the property of pupils, absent persons, and persons under mental incapacity, in Scotland." Section 13 provides that nothing in this Act contained shall restrict or affect the jurisdiction of the High Court of Justice in England, and of the High Court of Justice in Ireland, or of any division of the said Courts, and of the Court of Session in Scotland, to appoint or remove guardians, or (in the case of Scotland) tutors or factors loco tutoris or otherwise in respect of infants.

[49 & 50 Victoriæ, cap. 52.—25th June, 1886.]

An Act to amend the Law relating to the Maintenance of Married Women who shall have been deserted by their Husbands.

Short Title: "Married Women (Maintenance in case of Desertion) Act, 1886."

The Act provides that it shall be lawful for any married woman, who shall have been deserted by her husband, to summon him before any two justices in petty sessions or any stipendiary magistrate, who if satisfied that the husband can maintain his wife, may order the husband to pay to his wife a weekly sum not exceeding 2*l.*, and the payment of a sum so ordered shall be enforced against the husband in the same manner as the payment of money under an order of affiliation. But no order for payment of any sum by the husband shall be made in favour of a wife who shall be proved to have committed adultery, unless the adultery has been condoned. Section 2 provides that a summons shall be granted as summonses are now granted in cases of assault. The Act does not extend to Scotland.

[49 & 50 Victoriæ, cap. 56.—25th June, 1886.]

An Act for the Protection of Children against the Sale to them of Intoxicating Liquors.

Short Title: "Intoxicating Liquors (Sale to Children) Act, 1886."

The preamble recites the expediency of protecting young children against the immoral consequences resulting from their being permitted to purchase intoxicating liquors for their own consumption. Section 1 enacts that every holder of a licence who knowingly sells, or allows any person to sell, any description of intoxicating liquors to any person under the age of 13 years for consumption on the premises by any person under such age, shall be liable to a penalty not exceeding 20*s.* for the first offence, and not exceeding 40*s.* for the second and any subsequent offence. Section 2 enacts that legal proceedings are to follow the Licensing Acts, 1872-1874. This Act does not extend to Scotland.

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7. MISCELLANEOUS.

[49 Victoriæ, cap. 3.—29th March, 1886.]

An Act to remove Doubts as to the Validity of certain Marriages.

Short Title: "Marriages Validity Act, 1886."

The preamble recites that doubts have been entertained as to the validity of certain marriages solemnised in England, one of the parties to such marriages being resident in Scotland: Section 1 enacts that no marriage solemnised, or to be hereafter solemnised, in any church in England, after publication of banns in such church, shall be, or be

deemed to have been, invalid by reason only that one of the parties to such marriage was at the time of such publication resident in Scotland, and that banns may have been published or proclaimed in any church of the parish or place in which such party was resident, according to the law or custom prevailing in Scotland, and not in the manner required for the publication of banns in England.

[49 Victoriæ, cap. 9.—16th April, 1886.]

An Act to Amend the Prisons Act of 1877, *so far as regards the Superannuation of Prison Officers.*

Short Title: "Prison (Officers' Superannuation) Act, 1886."

Section 1 enacts that in "The Prison Act of 1877," 40 & 41 Vict., cc. 21, 49, 53, the expression "prison service" includes as respects the period after the 1st day of April, 1878, service in a military prison under "The Army Act, 1879," or "The Army Act, 1881," and service in a naval prison under "The Naval Discipline Act;" and annuities by way of superannuation allowance, and gratuities may accordingly be granted to any officer of a prison, and apportioned in a manner provided by the said Prison Acts. Section 2 enacts that this Act, so far as it affects any of the Acts mentioned in the schedule to this Act, shall be construed as one with that Act. This Act and "The Prison (Officers' Superannuation) Act, 1878," (*a*) so far as they relate to England, may be cited together with "The Prison Act, 1877," and "The Prison Acts, 1877 to 1886;" and (*b*) so far as they relate to Scotland may be cited together with "The Prisons (Scotland) Act, 1877," as "The Prison (Scotland) Acts, 1877 to 1886;" and (*c*) so far as they relate to Ireland may be cited together with "The General Prisons (Ireland) Act, 1877," as "The Prison (Ireland) Acts, 1877 to 1886."

[49 Victoriæ, cap. 11.—16th April, 1886.]

An Act to provide for the payment of Compensation for Damage done during a certain Riot in the Metropolitan Police District.

Short Title: "Metropolitan Police (Compensation) Act, 1886."

The preamble recites the desirability of providing compensation for the owners of certain houses and shops in the metropolitan police district and in the city of London for the property therein injured, stolen, or destroyed by persons taking part in a riot on the 8th day of February last. Section 2 enacts that where a person shows, in manner provided by this Act, that a house or shop occupied by him in the metropolitan police district, or in the city of London, was injured or the property therein was injured, stolen, or destroyed by any persons who took part in such riot as aforesaid, such compensation as hereinafter mentioned for such injury, stealing, or destruction shall be paid out of the metropolitan police rate and the city of London police rate conjointly in such proportions as the annual values of the property liable and subject to those rates respectively bear to each other. Section 3 enacts that claims for compensation

under this Act shall be made to the police receiver, who shall inquire into the truth thereof, and shall, if satisfied, pay such compensation as may appear to him to be just. Section 4 provides for appeal, as to award or refusal of compensation, to an arbitrator who shall be appointed by the Chairman of the Metropolitan Board of Works, with the approval of one of Her Majesty's Principal Secretaries of State; the decision of such arbitrator to be final. All compensation payable under the Act, and the costs of arbitration together with all costs and expenses payable to the receiver are to be raised as part of the metropolitan police rate and the city of London police rate respectively. Section 6 enacts that no proceedings before justices nor any action or other legal proceeding shall, after the passing of this Act be instituted, nor, if commenced before the passing of this Act, be continued against the authorities of the hundred or any other public authority for the purpose of recovering compensation for any damage for which compensation can be awarded under this Act, and any order made before the passing of this Act for payment of any such compensation shall be cancelled. Section 7 defines the expression "person" as including a body of persons, corporate or unincorporate: the expression "police receiver" as meaning the receiver for the metropolitan police district: the expression "metropolitan police rate" means the rate authorised to be levied for raising that proportion of the sum required for defraying the expenses of the metropolitan police force which can be raised by a rate. An empty house or shop shall be deemed for the purposes of this Act to have been occupied by the owner. The expression "city of London police rate" means the rate authorised to be levied for defraying that proportion of the sum required for defraying the expenses of the city of London police force which can be raised by a rate.

[49 Victoriæ, cap. 14.—10th May, 1886.]

An Act for extending the Hours within which Marriages may be lawfully solemnised.

Short Title: "Marriage Act, 1886."

Section 1 (1) provides that from and after the passing of this Act it shall be lawful to solemnise a marriage at any time between the hours of eight in the forenoon and three in the afternoon. That section 21 of the Act of the fourth year of King George 4, c. 76, for amending the laws respecting the solemnisation of marriages in England, which provides for the punishment of persons solemnising matrimony during unlawful hours, shall have effect as if the words "eight in the forenoon and three in the afternoon" were substituted therein for the words "eight and twelve o'clock in the forenoon," and no person shall be subject to any proceedings in any court, ecclesiastical or temporal, for solemnising matrimony between the aforesaid hours of eight in the forenoon and three in the afternoon. Section 2 enacts that this Act shall not extend to Scotland or Ireland.

[49 Victoriæ, cap. 15.—10th May, 1886.]

An Act to amend the Law as to the Rating of Lands occupied for Sporting purposes in Scotland.

Short Title: "Sporting Lands Rating (Scotland) Act, 1886."

Section 1. This Act shall come into operation on the 1st day of January, 1887, and shall apply to Scotland only. Section 2. The expression "the Valuation Acts" shall mean the Act 17th & 18th Vict., c. 91, and any Acts amending the same. The expression "the assessor" shall mean the assessor appointed and acting under the Valuation Acts. The expression "the Poor Law Act" shall mean the Act 8th & 9th Vict., c. 83. Section 3. This Act shall be read and construed along with the Valuation Acts and the Poor Law Act. Section 4. The 42nd section of the Act 17th & 18th Vict., c. 91, shall be read and construed as if the words "where such shootings or deer forests are actually let" were not therein contained. Section 5. The first section of the Poor Law Act shall be read and construed as if the definition of "lands and heritages" therein expressly referred to included shootings and deer forests. Section 6. In order to ascertain and assess under the Valuation Acts the yearly value of shootings and deer forests in Scotland, it shall be the duty of the assessor to enter separately for each parish, and in respect of each proprietor therein, the yearly value of the shootings over the lands and of the deer forests belonging to him in so far as situated within such parish. Section 7. All county, parochial, or other public assessments, and all assessments, rates, or taxes, under any Act of Parliament, authorised to be imposed or made upon or according to the annual value of lands and heritages ascertained under the Poor Law Act, shall be imposed or made upon or according to the annual value of shootings and deer forests ascertained under the Valuation Acts, as amended by this Act, or upon the annual value thereof ascertained under the Poor Law Act, as amended by this Act, as the case may be.

[49 Victoriæ, cap. 16.—10th May, 1886.]

An Act to amend the Law in regard to the Vacating of Seats in the House of Commons.

Short Title: "Lunacy (Vacating of Seats) Act, 1886."

Section 2 enacts that from and after the passing of this Act, if a member of the House of Commons is received, or committed into, or detained in any asylum, house, or other place as a lunatic, the following provisions shall have effect: it shall be the duty of the court, judge, magistrate, or person under or upon whose order, and of every medical person or practitioner upon whose certificate such member has been so received, &c., and of every superintendent, officer, proprietor, or other person having the chief charge of such asylum, &c., as soon as may be, to certify such reception, &c., to the Speaker of the House of Commons. It shall be lawful for any two members of the House of Commons to certify to the Speaker that they are credibly informed of such reception, committal, or detention. The

Speaker shall forthwith transmit such certificate or certificates, as the case may be, if the place of such reception, committal, or detention is in England, to the Commissioners in Lunacy in England; if such place is in Scotland, to the Board of Commissioners in Lunacy in Scotland; and if such place is in Ireland, to the inspectors of lunatic asylums in Ireland. Provision is made for the examination of the member to whom such certificate relates and for a report thereon. If such member is reported to be of unsound mind, the Speaker is required to call upon the Commissioners to hold another examination at the expiration of six months from the aforesaid report, and if they shall report that he is still of unsound mind, the Speaker shall forthwith lay both reports on the table of the House of Commons, and thereupon the seat of the member shall be vacant. Section 3 enacts that every medical person or practitioner, and every superintendent, officer, proprietor, or other person having the chief charge of any asylum, house, or other place, who shall wilfully contravene or disobey the provisions of this Act shall be liable to a penalty not exceeding 100*l.*, to be recovered with costs at the suit of any person in Her Majesty's High Court of Justice in England or Ireland, or in the Court of Session in Scotland, as the case may be.

[49 & 50 Victoriæ, cap. 29.—25th June, 1886.]

An Act to amend the Law relating to the Tenure of Land by Crofters in the Highlands and Islands of Scotland, and for other purposes relating thereto.

Short Title: "Crofters Holdings (Scotland) Act, 1886."

The preamble states the expediency of amending the law relating to the tenure of land by crofters in the highlands and islands of Scotland. Section 1 provides that a crofter shall not be removed except for breach of statutory conditions, but he shall have no power to assign his tenancy: he shall pay his rent at the terms at which it is due and payable: he shall not, to the prejudice of the interest of the landlord, persistently injure the holding by the dilapidation of buildings: he shall not do any act whereby he becomes notour bankrupt within the meaning of the 19 & 20 Vict., c. 79, 43 & 44 Vict., c. 34. The landlord or any persons authorised by him shall have the right to enter upon the holding for the purpose of mining, quarrying, cutting or taking timber or peats, excepting timber and other trees planted by the crofter or his predecessors in the holding, being of the same family, or that may be necessary for ornament or shelter, and excepting also such peats as may be required for the use of the holding; opening or making roads, fences, drains, and watercourses; passing and re-passing to and from the shore of the sea or any loch; examining at reasonable times the state of the holding; hunting, shooting, fishing, or taking game or fish, wild birds, or vermin, the word "game" meaning deer, hares, rabbits, pheasants, partridges, quails, landrails, grouse, blackgame, capercailzie, ptarmigan, woodcock, snipe, wild duck, widgeon, and teal: the crofter shall not on his holding, without the consent of his landlord, open any house for the sale of intoxicating liquors. Section 2 provides that notwithstanding the provi-

sions contained in the preceding section, the Crofters Commission may, on the application of the landlord for some reasonable purpose, authorise the resumption of the holding or part thereof by the landlord upon such terms and conditions as they shall think fit, upon the landlord making adequate compensation to the crofter. Section 3 provides that when one year's rent of the holding, but less than two years' rent, is due and unpaid, the crofter shall be liable to be removed in manner provided by section 27 of "The Agricultural Holdings (Scotland) Act, 1883," 46 & 47 Vict., c. 62. When two years' rent of the holding is due and unpaid, or when the crofter has broken any other of the statutory conditions, he shall forfeit his tenancy. Section 5 provides that the rent may be altered by agreement. Section 6 provides that the landlord or the crofter may apply to the Crofters Commission to fix the fair rent to be paid by such crofter to the landlord for the holding. The rent fixed by the Crofters Commission (in this Act referred to as the fixed rent) shall be deemed to be the rent payable by the crofter as from the first term of Whitsunday or Martinmas next succeeding the decision of the Crofters Commission, and shall come in place of the present rent, and, save by mutual agreement, the fixed rent shall not be altered for a period of seven years from such term. When the Crofters Commission shall fix a rent which shall be less in amount than the present rent, the crofter shall be entitled, at the next payment of rent, to deduct from the amount of the fixed rent such sum or sums as he may have paid over or above the amount of the fixed rent in respect of the period between the date of the notice of application to fix the fair rent and the date when such rent was fixed. When an application is lodged to fix a fair rent, the crofter shall not be removed in respect of non-payment of rent till the application is finally determined. Section 7 provides that a crofter shall be entitled, upon one year's notice in writing to the landlord, to renounce his tenancy as at any term of Whitsunday or Martinmas. Section 8 provides compensation to the crofter for improvements on removal, provided that the improvements are suitable to the holdings, and have been executed or paid for by the crofter or his predecessors in the same family, and have not been executed in virtue of any specific agreement in writing under which the crofter was bound to execute such improvements. Section 9 provides similar compensation to a cottar. Section 10 enacts that improvements shall be valued under this Act at such sum as fairly represents the value of the improvement to an incoming tenant, provided that the value of any assistance proved to have been given by the landlord shall be taken into account, and deducted from such compensation. Section 11 provides that application may be made by any five or more crofters for enlargement of their holding. Section 12. The Crofters Commission shall, upon receiving such an application, intimate the same to the landlord or landlords, and shall ascertain as far as possible how far the small size of the holdings has been due to the action of the landlord or of the crofters; and if they are satisfied that there is land in the parish, or in an adjacent crofting parish, available for enlarging the holdings, but that the landlord refuses to let the same for that purpose on reasonable terms, that the applicants are willing and able to pay a fair rent, and are able properly to cultivate or stock the land, the Commission may make an

order for a lease of the said land, or such part thereof as they may think proper, to the applicants, at a fair rent. Section 13 enacts that land shall not be deemed available land for the purposes of this Act unless it lies contiguous or near to land already in the occupancy of the crofters making the application, and belongs to the same landlord or landlords as the land occupied by the said crofters. If the land is subject to an existing lease for a term of years, entered into prior to the commencement of this Act (not being a lease for the purposes of a deer forest, or of a grouse moor, or for other sporting purpose), it shall not be competent to assign any part thereof for the enlargement of holdings, unless with the assent of the landlord and of the tenant of such land, and upon such terms as such landlord and tenant shall voluntarily agree to. The Crofters Commission cannot assign land for the enlargement of the crofters' holdings—if the land forms part of any garden, policy, park, plantation, or other wood; or if the land forms part of any farm, whether subject to a lease or not, unless the assignment can be made without material damage to the letting value of the remainder; if the land forms part of an existing holding, unless the rent or annual letting value of such holding shall exceed 100*l.*; if the land is arable or improved pasture in the immediate vicinity of a residence or farm steading, or is land which could not be assigned for the enlargement of the crofters' holdings without substantially impairing the amenity of such residence or farm steading; if the land form part of a deer forest, and if the assignation would seriously impair the use of the remainder as a deer forest, and would act injuriously on the prosperity of the inhabitants generally. The aggregate value of the land assigned for the enlargement of the crofters' holdings shall not exceed one-third of the rent or annual letting value of the farm or other holding from which it is taken, when the annual value of the holding is between 100*l.* and 150*l.*, or one-half when the annual value is above 150*l.* and below 300*l.*, or two-thirds when the annual value of the holding is above 300*l.* The Crofters Commission shall not grant applications for the enlargement of holdings, if by such enlargement the annual value of any holding is raised to more than 15*l.* Section 14 provides that the Crofters Commission shall fix the amount of deduction from rent in case of lands held for sporting purposes. Section 16 provides that a crofter may, by will or other testamentary writing, bequeath his right to his holding to one person, being a member of the same family; that is to say, his wife or any person who, failing nearer heirs, would succeed to him in case of intestacy (hereinafter called the "legatee"), subject to the following provisions: the legatee shall intimate the testamentary bequest to the landlord or his known agent within twenty-one days after the death of the crofter, unless prevented by some unavoidable cause; within one month after intimation has been made to the landlord, he may intimate to the legatee that he objects to receive him as crofter in the holding; if no such intimation is made within one month, the legatee shall come into the place of the crofter as from the date of the death of the deceased crofter; if such intimation is made the legatee may present a petition to the sheriff, praying for decree declaring that he is the crofter therein, and due notice of the petition must be given to the landlord; the decision of the sheriff is to be final; and the legatee, pending any proceedings,

shall have possession of the holding unless the sheriff shall otherwise direct; if the legatee does not accept the bequest, or if the bequest is declared to be null and void, the right to the holding shall descend to the heir of the crofter: Provided that in the case of any legatee, or heir-at-law more distant than wife, son, grandson, daughter, granddaughter, brother, or son-in-law, it shall be competent to the landlord on his own part, or on the part of neighbouring crofters, to represent that, for the purpose of enlarging their holding, the holding ought to be added to them; and if the sheriff determines in favour of such representation, the heir, or the legatee, may claim such compensation for improvements as would have been competent to the deceased crofter if he had been removed at the date of his death. Section 17 provides for the appointment of three commissioners, one of whom shall be able to speak the Gaelic language. One at the date of his appointment shall be an advocate of the Scottish bar of not less than ten years' standing. It further provides for the appointment of the necessary officers by the Crofters Commission. The commission are to make a report of their proceedings once a year, and to determine what parishes, within the counties of Argyll, Inverness, Ross and Cromarty, Sutherland, Caithness, Orkney, and Shetland, are crofting parishes. Section 21 provides that it shall be competent to the Commissioners to decide summarily any questions relating to the boundaries or marches between crofters' holdings, including grazings and adjoining lands. Section 22 limits the duration of the powers of the Crofters Commission as to enlargement of holdings to five years. Section 25 provides that the decision of the Crofters Commission in regard to any of the matters committed to their determination by this Act shall be final. Section 30 provides that where, in any proceeding under this Act, the Crofters Commission is empowered to pronounce an order, the landlord and the crofter may agree to accept the decision of a sole arbiter mutually chosen instead of the decision of the Crofters Commission, and in that case any order pronounced by such sole arbiter shall, when recorded in the "Crofters' Holdings Book" along with the agreement to accept his decision, be as effectual to all intents and purposes as an order of the Crofters Commission. Section 31 provides that nothing in this Act shall affect the provisions of "The Agricultural Holdings (Scotland) Act, 1883," provided that, where any improvements are valued under the said Act with a view to compensation to be paid to a crofter, such valuation shall be made, unless the landlord and the crofter otherwise agree, by the Crofters Commission, according to the procedure prescribed. Section 32 authorises the Fishery Board for Scotland established under "The Fishery Board (Scotland) Act, 1882," to make loans to crofters for the purchase and equipment of fishing boats, and provides that all moneys due in respect of loans made under this Act may be recovered by the Fishery Board summarily, in manner provided by the Summary Jurisdiction Acts, 27 & 28 Vict., c. 53; 44 & 45 Vict., c. 33. Section 33 enacts that nothing in this Act shall apply to holdings in possession of servants. Section 34 defines "crofter" as meaning any person who at the passing of this Act is tenant of a holding from year to year, who resides on his holding, the annual rent of which does not exceed 30*l*., and which is situated in a crofting parish, and the successors of such person in the holding, being his heirs or legatees;

"crofting parish" as meaning a parish in which there are at the commencement of this Act, or have been within eighty years prior thereto, holdings consisting of arable land held with a right of pasturage in common with others, and in which there still are tenants of holdings from year to year, who reside on their holdings, the annual rent of which respectively does not exceed 30*l.* in money, at the commencement of this Act; "cottar" as meaning the occupier of a dwelling-house situate in a crofting parish with or without land who pays no rent to the landlord, as also the tenant from year to year of a dwelling-house situated in a crofting parish who resides therein, and who pays to the landlord therefor an annual rent not exceeding 6*l.* in money, whether with or without garden ground, but without arable or pasture land; "permanent improvements" as meaning the improvements specified in the Schedule to this Act; "holding" as meaning any piece of land held by a crofter, consisting of arable or pasture land, and which has been occupied and used as arable or pasture land immediately preceding the passing of this Act, including the site of his dwelling-house and any offices or other conveniences connected therewith, but not garden ground only, appurtenant to a house. Other expressions are to have the same meanings as in "The Agricultural Holdings (Scotland) Act, 1883," 46 & 47 Vict., c. 62.

[49 & 50 Victoriæ, cap. 38.—25th June, 1886.]

An Act to provide Compensation for Losses by Riots.

Short Title: "Riot (Damages) Act, 1886."

The preamble states the expediency of changing the law by which the inhabitants of the hundred or other area in which property is damaged by persons riotously and tumultuously assembled together are liable in certain cases to pay compensation for such damage. Section 2 provides for payment out of the police rate of compensation to persons for damage by riot. Where any person having sustained loss from riot, has received, by way of insurance or otherwise, any sum to recoup him, in whole or in part, for such loss, the compensation otherwise payable to him under this Act shall, if exceeding such sum, be reduced by the amount thereof, and in any other case shall not be paid to him. Section 3 provides that claims for compensation under this Act shall be made to the police authority of the district in which the injury took place; and empowers a Secretary of State from time to time to make, and when made, revoke and vary regulations respecting the time, manner, and conditions under which claims for compensation under this Act are to be made. Section 4 provides that where a claim to compensation has been made in accordance with the regulations, and the claimant is aggrieved by the refusal or failure of the police authority to fix compensation upon such claim, or by the amount of compensation fixed, he may bring an action against the police authority to recover compensation. If the amount of compensation for which such action is brought does not exceed 100*l.*, the action shall be brought in the county court for any district in which any part of the police district is situate. Section 5 provides that in

the case of a county divided into districts within the meaning of "The County Police Act, 1840," 3 & 4 Vict. c. 88, as amended by section 4 of "The County and Borough Police Act, 1856," 19 & 20 Vict., c. 69, the riot expenses shall be defrayed by the district in which the injury took place, as part of the local expenditure thereof. Where the police forces of a borough and a county have been consolidated, riot expenses shall be paid by the county and borough respectively in such proportions as may have been agreed upon by the police authority for the county and the council of the borough, and if no agreement is made, in such proportions as a Secretary of State may from time to time determine. Where the police rate is limited, an addition to that rate shall, if necessary, be levied for the purpose of raising the sum required to pay riot expenses under this Act. Section 6 applies the Act to wreck and machinery. Section 7 provides that (*a*) where a church or chapel or any property therein has been injured or destroyed, the persons having the management thereof, or the persons in whom the legal estate in the same is vested; and (*b*) where a school, hospital, public institution, or public building, or any property therein, has been injured, or destroyed, the persons having the control of such school, &c., shall be deemed to be the persons who have sustained the loss. By section 8 claims for compensation for loss sustained during any 12 months next before the passing of this Act may be allowed within one month after the passing of the Act by the police authority of any district other than the City of London or the Metropolitan police district. Section 9 defines the expression "person" as including a body of persons, corporate or unincorporate: the expression "house, shop, or building," includes any premises appurtenant to the same: the expression "borough" means a borough subject to "The Municipal Corporations Act, 1882," and the Acts amending the same. Section 10 repeals 7 & 8 Geo. IV, c. 31, 2 & 3 Will. IV, c. 72; and 17 & 18 Vict., c. 104, s. 477, from "in England" down to "riotous assemblage or as near thereto as circumstances permit," both inclusive. This Act does not extend to Scotland or Ireland.

[49 & 50 Vict., cap. 54.—25th June, 1886.]

An Act to amend the Tithe Commutation Acts as to Extraordinary Tithe Rentcharge on hop grounds, orchards, fruit plantations, and market gardens, and to provide for fixing the capital value thereof and the redemption of the same.

Short Title: "Extraordinary Tithe Redemption Act, 1886."

The preamble declares the extraordinary charge on hop grounds, orchards, &c., to be an impediment to agriculture. Section 1 provides that from the date of the passing of this Act no extraordinary charge shall be levied under the Tithe Commutation Acts on any hop ground, orchard, fruit plantation, or market garden, newly cultivated as such after the passing of this Act. Section 2 provides that the Land Commissioners for England shall certify the capital value of the extraordinary charge on each farm in each parish in England and Wales. Section 3 defines the manner in which the capital value is to be ascertained; the Commissioners are to take into consideration

the net annual value of the charge after allowing for the expenses of collection, rates, taxes (except income tax) and other outgoings, the value of the land subject to the charge, the length of time during which the charge has been paid, the prospect of the continuance of the special cultivation in respect of which the charge is imposed, the right of the cultivator to discontinue special cultivation, the prospect of the substitution of other land on the same farm for such cultivation, notwithstanding the provisions of the first section of this Act, and any other special circumstances applicable to the farm. By section 4 an annual rentcharge equal to 4 per cent. on the capital value is to be paid in lieu of the extraordinary charge. The rentcharge to be payable half-yearly on the days on which the extraordinary charge in the parish has hitherto been payable. The first payment to be a full half-yearly payment. The rentcharge may be recovered by action in the High Court of Justice, or a county court, and it shall not be subject to any parochial, county, or other rate, charge, or assessment. Section 5 provides that where the person entitled to the charge is the incumbent of a benefice, the owner or any person interested in the land may pay the amount of the capital value of the extraordinary charge to the Governors of Queen Anne's Bounty to be held for the benefit of the incumbent, as if it were money paid in redemption of ordinary rentcharge. Where the person entitled to the charge is absolutely entitled thereto in fee simple in possession, or is empowered to dispose thereof absolutely, the owner of the land may, after one month's notice, pay to him the amount of the capital value of the extraordinary charge or any less sum agreed on. In any other case the owner of the land may pay the amount of the capital value of the extraordinary charge into the Bank of England, to be placed to the account of the Paymaster-General. Section 6 provides for redemption in case of settled land, and enacts that where a person is tenant for life of land subject to an extraordinary charge or a rentcharge under this Act, he may borrow any money required for redemption thereof, and may charge the inheritance with repayment of the money with interest, and may sell the land, and apply the proceeds towards the redemption of the charge. Section 7 provides that where such a tenant has before the passing of this Act contracted to pay the charge, he shall whilst his tenancy subsists be liable to pay to his landlord the rentcharge substituted for the extraordinary charge. Section 9 provides that all the provisions of the Tithe Commutation Acts in relation to any award or apportionment shall be applicable to proceedings under this Act. By section 10 all expenses incurred by the Commissioners in carrying out the provisions of this Act are to paid by the landowners, in rateable proportion to the sum certified as the capital value on their respective lands. Section 12 gives power to the Governors of Queen Anne's Bounty to modify mortgages, with the consent of the patron, if the income of any benefice on which a mortgage to them exists has been diminished by the operation of the Act. Section 13 gives power to the Commissioners to adjust charges on one benefice in favour of another. Section 14 defines "landowner" to mean the person for the time being receiving the rackrent of land; "tithe payer" the person for the time being paying an extraordinary charge under the Tithe Commutation Acts, "tithe owner" the person receiving such charge.

ABSTRACTS OF PARLIAMENTARY AND OTHER OFFICIAL DOCUMENTS.

1. FINANCE, TAXATION, AND CURRENCY.

National Revenue and Expenditure.

The following tables show the PUBLIC INCOME and EXPENDITURE of the United Kingdom in the year ended 31st March, 1886:—

SOURCES OF REVENUE:—	£
Customs	19,827,000
Excise	25,460,000
Stamps (exclusive of fee, &c., stamps)	11,590,000
Taxes	2,890,000
Property and Income Tax	15,160,000
Post Office	8,150,000
Telegraph Service	1,740,000
Crown Lands (Net)	380,000
Interest on Advances for Local Works, &c., and on Purchase Money of Suez Canal Shares	1,376,080
Miscellaneous (including fee, &c., stamps)	3,008,221
Total Income	£89,581,301
Income for year estimated in Budgets	£89,869,000
Excess of Expenditure over Budget Income	£2,642,543

BRANCHES OF EXPENDITURE:—	£
Permanent Charge of Debt	22,771,359
Interest, &c., of Loans for Local Purposes	478,340
Interest, &c, Exchequer Bonds	199,979
Other Consolidated Fund Charges	1,638,387
Total Permanent Charge of Debt	£25,088,065

FORCES (exclusive of Fortifications, so far as met out of Loans, &c.):—	
Army, including Ordnance and Army Purchase Commission	17,027,084
Navy, including Transport Service	12,660,509
Afghan War, Grant to India	250,000
Naval and Military Operations, Vote of Credit	9,451,000
Miscellaneous Civil Services	17,725,764
Customs and Inland Revenue (Collection)	2,751,664
Packet Service	731,014
Telegraph Service	1,745,000
Post Office	4,793,744
Total Ordinary Expenditure	£92,223,844
Estimated on Budgets	£89,610.229
Excess over Estimates	2,613,615

Customs, Excise, and Stamps.

The following tables give the Net Produce from CUSTOMS, EXCISE, and STAMPS during the year ended 31st March, 1886.

Customs.

Articles usually contributing not less than £1,000 Annually.	Net Produce. £	s.	d.
Beer, Mum, and Spruce.	2,418	19	6
—— Of other Sorts . .	6,492	12	10
Chicory	65,651	9	6
Cocoa, Cocoa Husks, and Chocolate . .	70,472	0	1
Coffee	203,355	5	4
Currants	307,579	18	1
Figs	29,047	5	0
Plate, Gold and Silver .	6,827	9	9
Plums, Dried or Preserved, French Plums and Prunelloes . .	6,737	13	0
Prunes	7,796	8	11
Raisins	146,630	2	6
Spirits, Colonial and Foreign:—			
Rum	2,029,391	18	11
Brandy	1,356,673	11	6
Geneva	124,342	4	6
Of other sorts . . .	643,465	2	10
Tea	4,187,254	10	9
Tobacco and Snuff . .	9,298,989	16	4
Wine	1,194,654	14	9
All other Articles . . Loss on Light Gold	2,247	5	2
Charges on deliveries from the Bonded Warehouses . . .	32,118	11	9
Moneys deposited and not appropriated to goods	1,897	16	5
	£19,720,249	4	7
Duties collected at the Isle of Man . . .	2,052	18	5
Total Customs .	£19,722,302	3	0
Total, 1885 . .	£20,557,819	4	11

Excise.

	Net Produce. £	s.	d.
Beer	8,403,580	16	3¾
Railways	337,499	1	1½
Spirits	13,140,694	17	11
Chicory	2,536	17	11
Coffee Mixture Labels .	3,989	8	3
Licences, viz.:			
Auctioneers, Appraisers, &c.	80,169	0	0
Beer and Cider, and Beer and Wine . .	186,547	4	11¾
Brewers	36,140	5	0
Dog	343,133	17	6
Establishment, viz.:			
Armorial Bearings .	76,234	4	0
Carriages	540,508	11	6
Male Servants . .	137,294	5	0

EXCISE DUTIES, contd.	Net Produce. £	s.	d.
Game	184,958	12	6
Gold and Silver Plate .	48,263	9	9
Gun	85,942	0	0
Hawkers and Pedlars .	26,595	8	0
Medicine Vendors . .	5,064	0	0
Pawnbrokers . . .	35,385	0	0
Refreshment House .	6,835	2	1½
Spirits:			
Distillers and Rectifiers	4,166	10	0
Dealers	119,669	5	3
Publicans, including Grocers in Scotland and Ireland . . .	1,474,381	16	6¾
Tobacco	85,301	1	3
Wine and Sweets . .	67,934	9	11½
Other than the foregoing	9,096	8	11¾
Total Excise . . .	£25,441,921	13	10
Total, 1885 . .	£26,501,611	18	10

Stamps.

The following table gives the net receipts from Stamps in the United Kingdom during the year ended the 31st of March, 1886:—

Heads of Duty.	Net Produce. £	s.	d.
Probate and Account Duty.	4,103,644	3	10
Legacy Duty	2,474,722	10	10
Succession Duty . . .	858,240	11	8
Total Probate and Legacy, &c., Duties	7,436,607	6	4
Corporation Duty. . .	32,647	10	7
Deeds and other Instruments, not included under the following heads . . .	1,800,681	4	0
Bills of Exchange . .	653,354	0	2
Receipts, Drafts, and other *Id.* Stamps .	963,260	7	5
Bankers' Notes. . . .	96	17	6
Composition for the Duties on the Bills and Notes of the Banks of England and Ireland, and of Country Bankers .	124,010	3	10
Cards	15,852	6	3
Gold and Silver Plate, viz.:			
Gold	22,310	6	4¾
Silver	45,002	16	1½
Licences and Certificates	153,164	10	0
Life Insurances . . .	38,527	13	10
Marine Insurances . .	136,380	14	9
Medicines (Patent) . .	178,718	10	3
Total Stamps . .	£11,600,914	7	5½
Total, 1885 . . .	£11,886,185	3	8

Fee and Patent Stamps.

Heads of Duty.	Net Receipts. £	s.	d.	Heads of Duty.	Net Receipts. £	s.	d.
Admiralty Court (Ireland)	400	19	0	Land Court (Ireland)	1,224	18	5
Bankruptcy Court (Ireland)	3,598	2	0	Land Registry (England)	876	12	5
Chancery Fund (Ireland)	749	19	0	Law Courts (Scotland)	5,258	10	0
Civil Service Commission	11,757	12	4	London Gazette	18,462	8	10
Colonial Stock Act	60	0	0	Lord Chancellor's Presentation	613	10	0
Companies Registration	28,422	2	6	Newspaper Registration	406	5	0
County Courts (Ireland)	29,836	16	10	Police Courts (Metropolis)	8,599	7	0
Courts of Survey—Merchant Shipping	48	2	6	Public Record	734	7	6
Crown Office in Chancery	13,198	18	2	Railway Commission	120	15	0
District Audit	28,642	0	0	Register House (Scotland)	35,987	6	3
Judgments Registry Fund (Ireland)	3,058	9	0	Registration of Deeds (Ireland)	11,913	10	5
Judicature (England)	368,524	19	1	Total Fee Stamps	£615,770	19	11
,, (Ireland)	38,062	3	2	Patents for Inventions, &c.	87,725	15	6
Land Commission (England)	5,213	5	6	Total Fee and Patent Stamps	703,496	15	5
				Total, 1885	£692,358	2	6

National Debt.

NATIONAL DEBT FROM 1871 TO 1886.—The following table shows the total amount of the National Debt at the end of each financial year, 1871 to 1886:—

Financial Years ended 31st March	Funded Debt. Capital of Unredeemed Funded Debt, inclusive of Unclaimed Stock and Dividends.	Funded Debt. Estimated Capital of Terminable Annuities (Computed in 3 per Cent. Stock), at Par.	Amount of Unfunded Debt.	Total Amount of National Debt, inclusive of Unclaimed Stock and Dividends.
	£	£	£	£
1871	732,043,270	51,050,196	6,091,000	789,184,466
1872	731,756,962	49,013,769	5,155,100	785,925,831
1873	727,374,082	47,018,928	4,829,100	779,222,110
1874	723,514,005	44,941,333	4,479,600	772,934,938
1875	714,797,715	48,908,742	5,239,300	768,945,757
1876	713,657,517	45,847,366	11,401,800†	770,906,683
1877	712,621,355	43,449,568	13,943,800†	770,014,723
1878	710,843,007	40,705,718	20,603,000†	772,151,725
1879	709,430,593	37,664,369	25,870,100†	772,965,062
1880	710,476,359	33,784,649	‡27,344,900†	771,605,908
1881	709,078,526	34,988,435	22,077,500†	766,144,461
1882	*709,498,547	33,181,875	*18,007,700†	760,688,122
1883	*712,698,994	27,570,876	*14,185,400†	754,455,270
1884	‖640,631,095	‖91,682,269	14,110,600†	746,423,964
1885	640,181,896	86,115,658	14,033,100†	740,330,634
1886	638,849,693	85,829,917	17,602,801†	742,282,411

* Under the National Debt Act, 1881, Bonds amounting to 7,750,000*l.* were converted into 8,603,006*l.* Stock.

† Including outstanding Exchequer Bonds issued for raising money for the purchase of Suez Canal shares. In 1886 these amounted to 3,359,000*l.*

‡ Including 1,000,000*l.* borrowed in aid of Ways and Means.

‖ In the course of the financial year 1883–4, 70,241,908*l.*, three per cent. Stock was converted into Terminable Annuities under the provisions of the National Debt Act, 1883.

Annual Charge on the Consolidated Fund.

The following table shows the annual charge in each year from 1874 to 1886 upon the Consolidated Fund for service of the National Debt:—

Years ending 31st March.	Annual Issues from the Exchequer for the Service of the National Debt.			
	Interest.	Repayment of Capital*		Totals.
		By Automatic Operation of Terminable Annuities.	Sinking Funds, forming part of the Annual Charge, and Suez Bonds Paid off.	
	£	£	£	£
1874..	23,595,354	3,104,466	6,906	26,706,726
1875..	23,492,117	3,595,457	6,906	27,094,480
1876..	23,351,529	3,805,314	286,907	27,443,750
1877..	23,351,569	3,999,578	641,687	27,992,834
1878..	23,402,562	4,177,656	832,532	28,412,750
1879..	23,542 513	4,397,988	703,682	28,644,183
1880..	23,496,263	4,543,441	723,170	28,762,874
1881..	23,528,053	5,621,503	425,708	29,575,264
1882..	23,279,712	6,026,859	359,374	29,665,945
1883..	23,035,334	6,296,793	346,971	29,679,098
1884..	22,902,406	5,981,210	767,910	29,651,526†
1885..	22,565,934	6,303,421	678,884	29,548,239
1886..	22,285,075	948,007	216,596	23,449,678

* The Old Sinking Fund and sundry other amounts also applicable to the reduction of the Debt do not form part of the annual charge.

† Exclusive of 1,914,633*l.*, issued to redeem the Indian loan annuity.

The following table shows the amount of the National Debt on the 31st day of March, 1886:—

	Capitals.		
Funded Debt:—	£	*s.*	*d.*
Consolidated Annuities, 3 per cent.	329,896,854	17	11
New Annuities, 3 per cent.	180,053,129	19	7
Reduced Annuities, 3 per cent.	77,151,474	7	5
New Annuities, 3½ per cent.	225,746	6	4
Annuities, 2¾ per cent.	4,647.799	3	0
Annuities (including 418,300*l.* Exchequer Bonds, 16 Vict., c. 23), 2½ per cent.	33,228,819	13	11
Banks of England and Ireland (debt to), 3 per cent.	13,645,869	4	8
Total Funded Debt	£638,849,693	12	10
Terminable Annuities	85,829,917	0	0
Exchequer Bills	5,162,800	0	0
Exchequer (Suez) Bonds	3,359,000	0	0
Exchequer Bonds (Cape Loan)	400,000	0	0
Treasury Bills	8,681,000	0	0
Deficit to Savings Banks and Friendly Societies Accounts at 20th November, 1885	2,133,497	18	0
Total Debt	£744,415,908	10	10
Deduct:—	£		
Loans recoverable	27,769,954		
Nominal value of Suez Canal Shares	3,532,040		
	31,301,994	0	0
Net value of Debt	£713,113,914	10	10

	£	s.	d.
Total Funded Debt on 31st March, 1885 .	640,181,896	2	6
Total Funded Debt on 31st March, 1886 .	638,849,693	12	10
Decrease in the year ended 31st March, 1886	1,332,202	9	8

Terminable Annuities.

	£	s.	d.
Annuity, per 26 Vict. c. 14, 46 & 47 Vict. c. 54, and 47 Vict., c. 2, expiring 5th October, 1903 (Conversion, 1884, Annuity)	35,121	0	0
Annuities, per 46 & 47 Vict. c. 54, s 2, expiring at various dates in 1888, 1892-3, and 1898 (Cancelled Stock, Savings Banks and Post Office Savings Banks)	3,600,000	0	0
Annuity, per 46 & 47 Vict. c. 54, s. 3, expiring 5th July, 1903 (Cancelled Stock, Court of Chancery)	2,665,835	0	0
Annuities, per 46 & 47 Vict. c. 54, s. 5, expiring February 1903 (Converted Annuities)	684,022	0	0
Annuity, per 43 & 44 Vict. c. 36, expiring 15th May, 1908 "Savings Banks Act, 1880"	83,672	12	0
Red Sea and India Telegraph Company's Annuity, per 25 & 26 Vict. c. 39, expiring 4th August, 1908	36,000	0	0
Annuities for Terms of Years, per 10 Geo. 4, c. 24, and 3 Will. 4, c. 14, expiring at various periods	29,570	14	0
Life Annuities, per 10 Geo. 4, c. 24; 3 Will. 4, c. 14; 16 & 17 Vict. c. 45; 27 & 28 Vict. c. 43, and 45 & 46 Vict. c. 51 .	1,064,803	2	2
Exchequer Tontine Annuities, per 29 Geo. 3, c. 41	1,000	0	0
	8,200,024	8	2
Annual Charge on Capital Funded Debt	18,988,885	18	8
	27,188,880	6	10
Sinking Fund Annuity on 2½ per Cents., per 33 & 34 Vict. c. 71, s. 69, expiring 5th July, 1894	6,906	14	7
Sinking Fund, per 44 & 45 Vict. c. 55, expiring at various dates	179,364	15	4
Sinking Fund Annuity, per 47 & 48 Vict. c. 23, s. 3, expiring 1st December, 1934	15,547	5	0
	27,390,699	1	9
Management	215,976	7	5
Total	£27,606,675	9	2

Rates of Income Tax 1845-1886.

Year.	Rate.	Year.	Rate.	Year.	Rate.
	s. d.		s. d.		s. d.
1845-6.. ..	0 7	1859-60 ..	0 9	1873-4.. ..	0 3
1846-7.. ..	0 7	1860-1.. ..	0 10	1874-5.. ..	0 2
1847-8.. ..	0 7	1861-2.. ..	0 9	1875-6.. ..	0 2
1848-9.. ..	0 7	1862-3.. ..	0 9	1876-7.. ..	0 3
1849-50 ..	0 7	1863-4.. ..	0 7	1877-8.. ..	0 3
1850-1.. ..	0 7	1864-5.. ..	0 6	1878-9.. ..	0 5
1851-2.. ..	0 7	1865-6.. ..	0 4	1879-80 ..	0 5
1852-3.. ..	0 7	1866-7.. ..	0 4	1880-1.. ..	0 6
1853-4.. ..	0 7	1867-8.. ..	0 5	1881-2.. ..	0 5
1854-5.. ..	1 2	1868-9.. ..	0 6	1882-3.. ..	0 6½
1855-6.. ..	1 4	1869-70 ..	0 5	1883-4.. ..	0 5
1856-7.. ..	1 4	1870-1.. ..	0 4	1884-5.. ..	0 5
1857-8.. ..	0 7	1871-2.. ..	0 6	1885-6.. ..	0 8
1858-9.. ..	0 5	1872-3.. ..	0 4	1886-7.. ..	0 8

Notes.—(*a*). From 1853-4 to 1862-3 a lower rate was charged on incomes from 100*l.* to 150*l.* as follows:—1853-4 at 5*d.*; 1854-5 at 10*d.*; 1855-6 at 11½*d.*; 1856-7 at 11½*d.*; 1857-8 at 5*d.*; 1858-9 at 5*d.*; 1859-60 at 6½*d.*; 1860-61 at 7*d.*; 1861-2 at 6*d.*;

and 1862–3 at 6*d*. From 1863 to 1876 incomes under 100*l*. were free of taxation, and there was only one rate for all incomes above that sum, with abatement of 60*l*. on incomes under 200*l*. from 1863 to 1871, and of 80*l*. on incomes under 300*l*. from 1872 to 1875. In 1876 the point of exemption was raised to 150*l*., and incomes below that amount have since been free of income tax, while for all incomes under 400*l*. no tax is paid upon the first 120*l*.

Direct Local Taxation.

The following table shows the amount of the rates levied for the purposes of local expenditure in England and Wales in the year 1883–4, the latest period for which the returns are given in the Statistical Abstract:—

	£
URBAN.	
(a.) Extra Metropolitan.	
Municipal Corporations	1,156,245
Urban Sanitary Authorities	5,880,113
Baths	595
(b.) Metropolitan.	
Poor Law Authorities	2,231,101
Vestries and District Boards	1,605,752
Commissioners of Sewers of the City of London	200,652
Board of Works	716,186
Commissioners of Police	639,751
Corporation of London	73,542
Burial Boards	7,613
Church Rate	5,503
School Board	754,589
Baths	9,787
URBAN AND RURAL.	
Poor Law Authorities	6,153,488
Burial Boards	171,176
School Board	1,235,574
Church Rates	4,928
County Authorities	1,908,930
Commissioners of Sewers	62,083
Drainage, Embankment, &c., Boards	211,310
RURAL.	
Highway Authorities	1,602,554
Rural Sanitary Authorities	279,828
Lighting and Watching Act, 2 & 3 Will. 4, c. 90.	22,847
Total	24,934,147
Total, 1882–3	24,869,140

Local Taxation.

The aggregate receipts of the local authorities of England and Wales during the financial year 1883–4 amounted to 43,192,257*l*., excluding receipts from loans. The receipts from loans during the year amounted to 7,928,753*l*.

Coinage of the Royal Mint.

The amount of gold, silver, and copper (bronze) moneys coined at the Royal Mint in each year from 1867 to 1885 was as follows:—

Years.	Gold.	Silver.	Copper.
	£	£	£
1867	496,397	193,842	33,301
1868	1,653,384	301,356	16,328
1869	7,372,204	76,428	20,832
1870	2,313,384	336,798	32,704
1871	9,919,656	701,514	7,616
1872	15,261,442	1,243,836	47,413
1873	3,384,568	1,081,674	46,218
1874	1,461,565	890,604	65,632
1875	243,264	594,000	69,813
1876	4,696,648	222,354	61,450
1877	981,468	420,948	51,146
1878	2,265,069	613,998	17,024
1879	35,050	549,054	44,654
1880	4,150,052	761,508	19,269
1881	—	997,128	39,341
1882	—	209,880	42,560
1883	1,403,713	1,274,328	33,450
1884	2,324,015	658,548	69,290
1885	2,952,158	727,570	53,361

The report of the Deputy Master states that the coinages required by the colonies were more numerous and of greater amount than in any previous year. The amount of gold coined during the year was again below the average, though exceeding by more than half a million on the amount coined in 1884, and the silver coinage, which was larger than that of the previous year, was slightly in excess of the average. The amount of bronze coined was somewhat less than that of 1884, although considerably in excess of the yearly average of the last 10 years. The seignorage which accrued to the State last year was at the rate of 17½*d*. per ounce, or nearly 36 per cent., as against 30¾ per cent in 1884, and 30 per cent. in 1883. This is the highest rate of seignorage yet attained, and shows the very low price of silver bullion which ruled during the year. The total amount of bronze coined and issued from its first introduction in 1860 to the end of 1885 is £1,709,753, which is more than double the amount of the old copper coin estimated to have been in circulation at the earlier date. The demand for bronze coin has shown a decided tendency to increase during the past year.

Bank Rate.—The following Table shows the Average Minimum Rate per cent. of Discount charged by the Bank of England in each Month, in each Year from 1872 to 1885:—

Months.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.
January	3	4½	3½	4½	4½	2	3½	4½	3	3 5/16	5 1/16	4½	3	5
February	3	3½	3½	3½	4	2	2	3	3	3½	5 1/16	3½	3 1/16	5
March	3	3½	3½	3½	3½	2	2½	2½	3	3	4	3	3 1/16	3 5/16
April	3½	4	3½	3½	2½	2	3	2½	3	3	3	3	2½	3½
May	4½	5½	4	3½	2	2⅞	3	2	3	2½	3	3 1/16	2½	2 21/32
June	3½	6½	2	3½	2	3	2½	2	2½	2½	3	4	2½	2
July	3½	4⅞	3	3	2	2¼	3½	2	2½	2½	3	4	2	2
August	3½	3½	3⅝	2¼	2	2¼	4⅝	2	2½	2 1/16	3 1/16	4	2	2
September	3½	3½	3	2	2	3	5	2	2½	4	4 7/16	3 1/16	2	2
October	5⅝	6	3½	3⅛	2	4½	5½	2	2½	3 1/16	5	3	2⅝	2
November	6½	8½	4⅝	3½	2	4¼	5⅝	2⅞	2½	5	5	3	4⅝	2 1/20
December	5⅜	5¼	6	3	2	4	5	3	2⅞	5	5	3	5	3 11/21
Average for Year	4⅛	4⅜	3¾	3¼	2⅝	2⅞	3¾	2⅜	2¾	3½	4¼	3 9/16	2 19/20	3

Price of Stock.—The following Table shows the medium price per 100*l.* of the Three per Cent. Consolidated Stock of the Public Funds of the United Kingdom in each Month, in each Year from 1872 to 1885:—

Months.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.
January	92⅝	92⅛	92⅛	92⅜	93⅞	95½	95 3/16	95⅝	97⅛	98⅝	99 1/16	100⅛	101⅛	99⅛
February	92	92⅜	92⅛	92 1/16	94 3/16	95 1/16	95 9/16	96¼	98⅛	98 1/16	99⅜	102¼	101⅛	99½
March	92⅜	92⅝	92	93	94 1/16	96 7/16	95¼	96⅜	97⅞	99½	100⅞	102⅛	101 9/16	97⅝
April	92¾	93⅛	92½	93½	94 1/16	95⅜	94 1/16	98⅛	98⅛	100 1/16	101⅝	102⅜	102⅓	96¼
May	93⅛	93½	93¼	94	96	94¼	96 1/16	98⅜	99½	102 1/16	102	101⅛	101⅓	99¼
June	92⅜	92½	92⅝	93	94½	94⅓	95⅞	97¼	98⅜	100⅛	100½	100⅓	100 1/16	99⅜
July	92⅛	92⅛	92⅝	94¼	95¼	94⅓	95 1/16	97⅛	98⅜	101⅛	99 1/16	99 1/16	100⅛	99⅜
August	92½	92⅜	92½	94⅜	96 7/16	95⅛	94 1/16	97¼	97½	100¼	99½	99⅞	100⅝	100
September	92⅜	92⅛	92⅝	94⅜	95⅜	95⅓	94 1/16	97¼	97¼	99⅜	99⅞	100⅝	101⅛	100 1/16
October	92¼	92½	92¼	94 1/16	95 7/16	95¼	94¼	98	98 1/16	98 5/16	101 1/16	101½	100 9/16	100⅜
November	92⅜	92⅝	93⅛	94⅞	95¼	96 1/16	95 1/16	98¼	99 1/16	100⅛	102 1/16	101 1/16	100⅜	100⅛
December	91	92	91⅝	93⅜	94	95 5/16	94⅝	97⅜	98¼	99 5/16	100 1/16	100¼	99⅜	100
Medium for Year	92⅓	92⅓	92⅓	93¼	95	95⅛	95 3/16	97⅛	98⅝	100	100½	101 3/16	101	99⅜

The following is a Return of the Quarterly Averages of the Weekly Liabilities and Assets of the Bank of England for 1871, 1876, 1881, 1883, and 1884, 1885:—

Years.	Quarter ended	Liabilities.			Assets.		
		Notes in Circulation.	Deposits.	Total.	Securities.	Bullion.	Total.
		£	£	£	£	£	£
1871	March	24,158,000	27,902,000	52,060,000	33,578,000	21,945,000	55,523,000
	June	24,705,000	28,762,000	53,467,000	32,391,000	24,192,000	56,583,000
	September	25,668,000	29,061,000	54,729,000	32,909,000	25,264,000	58,173,000
	December	25,625,000	28,010,000	53,635,000	33,827,000	22,952,000	56,779,000
1876	March	27,118,000	26,662,000	53,780,000	34,336,000	22,932,000	57,268,000
	June	27,917,000	28,610,000	56,527,000	32,513,000	27,120,000	59,633,000
	September	28,653,000	33,669,000	62,322,000	32,314,000	33,456,000	65,770,000
	December	28,565,000	33,043,000	61,608,000	33,440,000	31,272,000	64,712,000
1881	March	26,100,000	34,017,000	60,117,000	37,204,000	26,400,000	63,604,000
	June	26,859,000	32,757,000	59,616,000	36,343,000	26,366,000	62,709,000
	September	27,135,000	31,514,000	58,649,000	37,478,000	24,676,000	62,154,000
	December	26,237,000	28,633,000	54,870,000	37,096,000	20,876,000	57,972,000
1883	March	25,385,000	30,362,000	55,747,000	37,141,000	22,142,000	59,283,000
	June	25,847,000	30,547,000	56,394,000	38,418,000	21,130,000	59,548,000
	September	26,142,000	29,016,000	55,158,000	35,381,000	23,253,000	58,634,000
	December	25,683,000	29,205,000	54,888,000	35,669,000	22,355,000	58,024,000
1884	March	24,744,751	32,745,694	57,490,445	37,381,698	22,534,204	59,915,902
	June	25,493,494	32,344,344	57,837,838	34,837,450	25,125,254	59,962,704
	September	25,954,761	30,797,424	56,752,185	35,411,106	23,801,465	59,212,571
	December	25,222,999	29,346,720	54,569,719	36,336,691	20,360,721	56,697,412
1885	March	23,994,768	30,043,542	54,038,310	35,932,542	23,393,083	59,325,625
	June	24,725,706	35,306,785	60,032,491	35,055,164	26,687,283	61,742,447
	September	25,168,582	35,605,974	60,774,556	37,614,717	25,113,487	62,728,204
	December	24,621,423	29,344,372	53,965,795	34,643,349	20,826,856	55,470,205

2. GENERAL COMMERCE AND NAVIGATION.

Navigation Returns.

The subjoined table shows the tonnage of British and Foreign vessels (sailing and steam) entered and cleared, *with cargoes*, at ports in the United Kingdom, from and to foreign countries and British Possessions, from 1867 to 1885:—

Years.	Entered.			Cleared.		
	British.	Foreign.	Total.	British.	Foreign.	Total.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1867 ..	9,356,814	3,984,634	13,341,448	10,586,058	4,261,523	14,847,581
1868 ..	9,572,450	4,279,207	13.851,657	10,902,171	4,570,848	15,473,019
1869 ..	10,042,182	4,444.518	14,486,700	11,313,757	4,603,227	15,916,984
1870 ..	10,308,952	4,601,790	14,910,742	11,934,087	4,779.851	16,713.938
1871 ..	11,250,120	5,205,222	16,455,342	13,396,583	5,650,872	19,047.455
1872 ..	12,139,805	5,766,135	17.905,940	13,574,471	5,673,881	19,248,352
1873 ..	12,474,912	6,320,145	18,795,057	13,653,c30	5,486,335	19,139,365
1874 ..	12.751,128	6,330,278	19,081,406	14,010,786	5,742,701	19,753,487
1875 ..	12,852,351	6,187,577	19,039,928	14,454,989	5,958,750	20,413,739
1876 ..	13,672,122	7,354,549	21,026,671	15,201,602	6,309,111	21,510,713
1877 ..	14,894,448	7,237,176	22,131,624	15,358,033	5,837,323	21,195,356
1878 ..	14,513,688	6.804,558	21,318,246	15,783,488	5,798,200	21,581,688
1879 ..	15,039,579	6,059,765	21,099,344	17,095,146	5,754,211	22 849,357
1880 ..	17,018,011	6,975,269	23,993,280	18,867,857	6,817,813	25,685,670
1881 ..	16,864,668	6,360,040	23,224,708	19,605,532	6,731,161	26,336,693
1882 ..	17,810,380	7,004,669	24,815,049	20,392,626	7,306,237	27,698,863
1883 ..	19,186,054	7,124,264	26,310,318	22,135,662	7,237,498	29,373,160
1884 ..	18,209,236	6.487,449	24,696,685	21.946,670	7,326,992	29,273,662
1885 ..	18,759.773	6,904,687	25,664,460	21,885,206	7,432.525	29,317,731

It will be seen from this table that the tonnage of vessels entered and cleared has been doubled within the last 20 years. It is curious to note that during the last 10 years the tonnage has progressively increased notwithstanding the depression in trade.

Coasting Trade.

The following table gives the tonnage of British and Foreign vessels employed in the coasting trade (distinguishing those employed in the intercourse between Great Britain and Ireland) entered and cleared, with cargoes, at ports in the United Kingdom during the years 1884 and 1885:—

Vessels employed in the	Entered.		Cleared.	
	1885.	1884.	1885.	1884.
	Tons.	Tons.	Tons.	Tons.
General Coasting Trade:				
British	17,975,220	17,318,256	16,113,693	15,422,835
Foreign	117,251	112,636	95,405	89,156
Intercourse between Great Britain and Ireland:				
British	9,049,163	9,273,069	8,414,597	8,656,569
Foreign	19,193	4,687	17,893	2,083
Total .. British . ..	27,024,383	26,591,325	24,528,290	24,079,404
Total .. Foreign . ..	136,444	117,323	113,298	91,239
Total	27,160,827	26,708,648	24,641,588	24,170,643

Imports and Exports.

The following tables give a summary of the values of the chief articles imported into and exported from the United Kingdom during the years ended the 31st December, 1884 and 1885, with the increase and decrease:—

IMPORTS FROM FOREIGN COUNTRIES AND BRITISH POSSESSIONS.

——	1884.	1885.	Increase.	Decrease.
	£	£	£	£
I. Animals, living (for food).	10,524,875	8,735,392	—	1,789,483
II. (*a.*) Articles of food and drink duty free ..	123,286,694	124,039,026	752,332	—
(*b.*) Articles of food and drink, dutiable ..	25,647,727	25,066,653	—	581,074
Tobacco—dutiable.. ..	2,776,936	3,900,559	1,123,623	—
III. Metals	16,806,056	16,287,049	—	519,007
IV. Chemicals, dyestuffs, and tanning substances ..	9,545,227	8,797,536	—	747,691
V. Oils	6,497,796	6,787,921	290,125	—
VI. Raw materials for textile manufactures	86,302,302	73,649,118	—	12,653,184
VII. Raw materials for sundry industries and manufactures	40,982,405	38,808,577	—	2,173,828
VIII. Manufactured articles ..	53,264,334	53,418,162	153,828	—
IX. Miscellaneous articles ..	14,140,197	14,344,321	204,124	—
Total value .. £	389,774,549	373,834,314	—	15,940,235

EXPORTS OF FOREIGN AND COLONIAL PRODUCE.

——	1884.	1885.	Increase.	Decrease.
	£	£	£	£
Total value (partly estimated) ..	62,942,341	57,903,528	—	5,038,813

EXPORTS OF BRITISH AND IRISH PRODUCE AND MANUFACTURES.

——	1884.	1885.	Increase.	Decrease.
	£	£	£	£
I. Animals, living	614,314	513,374	—	100,940
II. Articles of food and drink ..	10,483,908	9,942,508	—	541,400
III. Raw materials	13,493,244	13,367,307	—	125,937
IV. Articles manufactured and partly manufactured, viz.:				
(*a.*) Yarns and textile fabrics	109,864,416	101,871,483	—	7,992,933
(*b.*) Metals and articles manufactured therefrom (except machinery) ..	37,178,664	31,726,696	—	5,451,968
(*c.*) Machinery and mill work	13,073,464	11,074,651	—	1,998,813
(*d.*) Apparel and articles of personal use	10,788,353	10,343,543	—	444,810
(*e.*) Chemicals, and chemical and medicinal preparations	7,838,784	6,975,420	—	863,364
(*f.*) All other articles, either manufactured or partly manufactured.	29,690,095	27,216,425	—	2,473,670
Total value .. £	233,025,242	213,031,407	—	19,993,835

It will be seen from these tables that during the year 1885 there was a large decrease in the value of both imports and exports.

Imports

INTO THE UNITED KINGDOM.—The following table gives the quantities of the chief articles imported into the United Kingdom in the year ended the 31st of December, 1885:—

Articles.		Quantity.
Animals (for food)	No.	1,140,564
Bacon and Hams	Cwts.	4,045,349
Beef	,,	1,142,766
Butter and Butterine	,,	2,400,565
Cheese	,,	1,833,050
CORN:—		
Wheat	,,	61,453,801
,, meal	,,	15,835,192
Barley	,,	15,391,685
Oats	,,	13,061,811
Peas	,,	2,003,562
Beans	,,	3,514,664
Maize	,,	31,467,638
Total of Corn	,,	142,728,353
Eggs	Grt. hundreds.	8,351,306
Fish	Cwts.	1,520,570
Fruit	Bush.	9,589,417
Onions	,,	3,533,905
Potatoes	Cwts.	2,300,824
Rice	,,	5,561,059
Sugar (refined)	,,	5,338,050
,, (unrefined)	,,	19,383,746
Cocoa	Lbs.	23,419,396
Coffee	,,	1,035,610
Tea	,,	212,143,820
Spirits	Gals.	11,755,518
Wine	,,	14,629,738
Tobacco	Lbs.	83,227,297
METALS:—		
Copper	Tons	231,636
Iron and Steel	,,	2,951,648
Tin	Cwts.	510,574
Zinc	Tons	60,229
CHEMICALS:—		
Alkali	Cwts.	63,641
Indigo	,,	94,556
OILS:—		
Cocoanut	,,	185,971
Olive	Tuns	24,223
Palm	Cwts.	898,481
Petroleum	Gals.	73,869,787
Seed	Tuns	13,029
Fish	,,	18,374
Turpentine	Cwts.	308,442
MATERIALS:—		
Cotton (Raw)	,,	12,730,503
Flax	,,	1,664,836
Hemp	,,	1,446,398
Jute	,,	5,727,357
Silk	,,	2,081,600
Wool	,,	501,182,161
Bark (Peruvian)	,,	129,606
Hides	,,	1,227,092
Ivory	,,	9,884
Wood (Hewn and Sawn)	Lds.	6,164,979
MANUFACTURED ARTICLES:—		
Clocks	No.	785,446
Leather	Lbs.	80,785,530
Paper (Printing, &c.)	Cwts.	262,580
,, other kinds	,,	1,125,223
Watches	No.	554,137
Cloths	Yds.	1,687,887
Stuffs	,,	55,115,449
Woollen Yarn	Lbs.	14,632,803
MISCELLANEOUS:—		
Horses	No.	13,023
SEEDS:—		
Clover, &c.	Cwts.	315,803
Cotton	Tons	263,800
Flax	Qrs.	2,056,263
Rape	,,	544,275

Exports

OF HOME PRODUCE FROM THE UNITED KINGDOM.—The following table shows the quantities of the chief articles of British and Irish produce and manufactures exported from the United Kingdom in the year ended the 31st of December, 1885:—

Principal Articles.		Quantity.
Horses	No.	6,196
ARTICLES OF FOOD, &c.:—		
Beer	Brls.	436,529
Butter	Cwts.	28,694
Cheese	,,	12,738
Herrings	Brls.	1,239,618
Salt	Tons	921,931
Spirits	Gals.	2,721,777
Sugar, Refined	Cwts.	997,877
RAW MATERIALS:—		
Coals, &c.	Tons	23,770,957
Wool	Lbs.	23,454,500
MANUFACTURES:—		
Cotton (Yarn and Twist)	,,	245,809,900
Cotton (Piece Goods)	Yds.	4,374,516,500
Jute (Yarn)	Lbs.	30,714,900
,, (Piece Goods)	Yds.	215,097,100
Linen (Yarn)	Lbs.	16,566,900
,, (Piece Goods)	Yds.	149,479,100
Silk (Broad Stuffs)	,,	2,444,540
Woollen and Worsted Yarn	Lbs.	43,497,000
Fabrics	Yds.	86,838,900
Worsted Fabrics	,,	157,889,200
Blankets	Prs.	1,217,980
Carpets	Yds.	11,082,500
Flannels	,,	10,990,000
METALS:—		
Copper	Cwts.	1,215,176
Iron and Steel	Tons	3,130,682
Lead	,,	38,578
Tin	,,	93,108
APPAREL, &c.:—		
Boots and Shoes	Doz. Prs.	559,660

Articles.	Quantity.
Chemicals:—	
Alkali . . . . . Cwts.	6,661,800
Cement . . . . . ,,	7,357,900
Gunpowder . . . . Lbs.	12,799,300

Articles.	Quantity.
Miscellaneous:—	
Bags . . . . . Dozs.	3,596,486
Candles . . . . . Lbs.	7,810,400
Oil . . . . . Gals.	16,562,100
Paper (Printing, &c.) Cwts.	546,284

British and Irish Produce Exported.

The following table shows the value of exports of British and Irish produce from the United Kingdom to foreign countries and British possessions in 1885:—

Foreign Countries.

Countries.	Value. £
Russia, Northern Ports . . .	3,479,307
——— Southern Ports . . .	712,245
Sweden and Norway . . .	3,509,418
Denmark and Iceland . . .	1,903,055
——— Danish West Indies.	110,980
Germany	16,415,984
Holland	8,878,080
——— Java, and other Possessions in the Indian Seas	1,756,036
Belgium	7,806,357
France	14,978,990
——— Algeria	356,716
——— Possessions in Senegambia	196,833
——— Possessions in India .	9,380
Portugal	1,748,231
——— Azores and Madeira.	139,349
Spain	3,163,234
Spain, Canary Islands . . .	189,125
——— Fernando Po	8,637
——— West India Islands . .	1,461,920
——— Philippine Islands . .	955,962
Italy	6,627,165
Austrian Territories . . .	788,426
Greece	873,678
Roumania	791,885
Turkey	6,132,795
Egypt	3,481,538
Morocco	427,283
United States	21,993,821
Mexico	796,011
Central America	670,467
Haiti and San Domingo. . .	362,126
New Granada (United States of Columbia)	660,124
Venezuela	337,692
Ecuador	129,428
Brazil	5,348,844
Uruguay	1,406,742
Argentine Republic	4,660,460
Chili	1,404,866
Peru	704,151
China (exclusive of Hong Kong)	5,187,288
Japan	2,077,287
Western Coast of Africa . .	1,088,103
Other Countries	1,384,855
Total to Foreign Countries .	£135,114,874

British Possessions.

Channel Islands	511,991
Gibraltar	624,996
Malta	1,027,282
North American Colonies:—	
Dominion of Canada . .	6,838,634
Newfoundland	367,549
Total to North America Colonies.	£7,206,183

Countries.	Value. £
West India Islands and Guiana	2,339,620
British Honduras	91,493
Australia:—	
West Australia	275,440
South Australia.	2,237,626
Victoria	6,705,520
New South Wales	9,106,784
Queensland	2,449,624
Tasmania	455,480
New Zealand.	3,901,070
Fiji Islands	34,222
Total to Australia . . .	£25,166,766
British India	29,288,637
The Straits Settlements . . .	2,345,102
Ceylon	533,371
Hong Kong	3,757,523
Mauritius	263,021
Cape of Good Hope and Natal	3,824,537
West African Settlements . .	213,917
Possessions on Gold Coast . .	452,086
Other Possessions.	283,101
Total to British Possessions .	77,929,626
Total to British and Foreign Possessions	£213,044,500

Foreign and Colonial Merchandise Exported.

The following table shows the computed value of the foreign and colonial produce exported from the United Kingdom to foreign countries, and British possessions in 1885:—

Foreign Countries.	Value.
	£
Russia, Northern Ports	1,816,447
——— Southern Ports	232,694
Sweden and Norway	1,596,084
Denmark Proper, and Iceland	351,034
——— Danish West Indies	4,938
Germany	10,643,846
Holland	6,971,386
——— Java and other Possessions in the Indian Seas	22,359
Belgium	6,070,199
France	8,041,360
——— Algeria	6,245
——— Possessions in Senegambia	4,271
——— Possessions in India	144
Portugal	352,686
——— Azores and Madeira	19,841
Spain and the Balearic Islands	751,602
——— Canary Islands	9,902
——— Fernando Po	3,016
——— West India Islands	764,059
——— Philippine Islands	23,658
Italy	840,835
Austrian Territories	331,828
Greece	99,259
Roumania	54,772
Turkey	703,612
Egypt	219,737
Morocco	134,923
United States	9,100,768
Mexico	70,660
Central America	22,607
Haiti and St. Domingo	9,465
New Canada (United States of Colombia	34,824
Venezuela	12,701
Ecuador	8,895
Brazil	263,013
Uruguay	37,236
Argentine Republic	100,218
Chile	146,439
Peru	117,220
China (exclusive of Hong Kong)	328,630
Japan	221,418
Western Coast of Africa (exclusive of French and Spanish Possessions separately stated)	208,011
Other Countries	111,760
Total to Foreign Countries	£50,864,602

British Possessions.	
Channel Islands	196,701
Gibraltar	90,486
Malta	151,209
North American Colonies	1,168,449
West India Islands and Guiana	298,387
British Honduras	16,312
Australia	2,937,492
British India	1,590,028
The Straits Settlements	179,633
Ceylon	32,584
Hong Kong	304,659
Mauritius	30,760
Cape of Good Hope and Natal	357,659
West African Settlements	35,229
Possessions on the Gold Coast	52,079
Other Possessions	52,925
Total to British Possessions	£7,494,592
Total to Foreign Countries and British Possessions	£58,359,194

Transhipments.

The following table gives the value of the Foreign Merchandise transhipped at Ports in the United Kingdom from 1880 to 1885:—

	1880.	1881.	1882.	1883.	1884.	1885.
	£	£	£	£	£	£
Spirits, rum	22,489	21,270	21,323	41,722	42,102	43,573
,, brandy	961,584	908,589	839,436	912,510	823,777	742,429
,, Geneva	259,528	261,290	261,068	257,416	264,044	160,955
,, of all other sorts	267,847	196,579	157,264	170,924	114,794	145,127
Tea	822,739	617,542	438,311	464,541	418,773	743,637
Tobacco, unmanufactured	617,956	796,214	739,909	560,387	569,665	610,163
Tobacco, manufactured and cigars	241,541	158,578	231,979	257,453	265,949	294,626
Other articles not separately enumerated	9,346,571	9,603,175	9,306,467	9,024,365	9,356,007	8,215,175
Total of all articles transhipped	12,540,255	12,563,237	11,995,757	11,689,318	11,885,111	10,955,685

3. TRADE AND AGRICULTURE.

The Customs Revenue of 1885–6.

The Commissioners of Customs in their 30th Annual Report, state that the gross receipts of Customs Revenue in the year ended 31st March, 1886, amounted to 19,916,995*l.*, showing decrease of 806,322*l.* on the previous year. The receipts during the last quarter of the preceding year were unusually increased by an expectation on the part of the trade that the duty on some articles liable to Customs duties, but especially on tea, would be increased on the occasion of the financial statement by the Chancellor of the Exchequer. The increase to which this expectation gave rise in the last quarter of the financial year was as follows:—

	1883–4.	1884–5.
	£	£
Tea	1,060,890	1,478,890
Tobacco and snuff	2,259,942	2,356,580
Foreign spirits . .	998,800	1,090,389

Coffee and Tea.

The Commissioners report that there is no improvement in the consumption of coffee, on which the receipts of duty have decreased by 1,975*l.* The low duty on this berry of 14*s.* per cwt., equivalent to 1½*d.* per lb., does not appear to counteract the inconvenience which is inevitable in its preparation for consumption in comparison with tea. Without any change of duty, the annual receipts from coffee, which in 1875–76 were 206,696*l.*, and which should have yielded a revenue of 227,644*l.* in the year 1885–86 had they kept pace with the growth of the population, increased in the 10 years to no more than 207,977*l.* in the past year. The tea duty shows a decrease of 608,525*l.*, but owing to the disturbance of regularity in payment of the duty on tea, any inference that less tea had been consumed by the population would be unfounded.

Foreign Spirits.

The decrease in the receipts from rum and brandy together amounts to 195,610*l.*, which if it affords proof of real decrease in consumption, affords some compensatory satisfaction for loss of revenue in the inference that less of these spirits has been drunk.

Spirit Duties.

In the course of the year a temporary increase in the rates of duty on spirits of all sorts and on beer was charged and collected. Immediately on the charge of the additional duty, a large proportion of the dealers in spirits added the increased duty to the price of the article sold, as if it had already been paid on the duty paid stock in their possession; when this increased duty was returned to those who had paid it, it was impossible for the retailer to repay it to the innumerable small customers who, as consumers, had really paid it, so that the profit of the return of the duty to those who had paid it in the first instance remained generally with the dealers.

Tobacco.

The revenue from the tobacco duties shows an increase of 12,351*l.* This increase includes a decrease of 37,173*l.* on unmanufactured tobacco, and an increase of 44,293*l.* on cigars, and of 5,231*l.* on other descriptions of manufactured tobacco; but while the decrease on the unmanufactured article amounts to only 0·41 per cent., the increase on cigars is 11·97, and on other descriptions 9·89 per cent.

Wine.

The Commissioners believe that the decrease of 39,351*l.* in the receipt from wine has followed a real diminution of consumption, though some of it may have been caused by the expectation of some reduction of duty on wines of a strength of 26° and upwards. The gross revenue derived from wine at quinquennial periods since 1869 is shown below:—

	£
1869–70	1,478,862
1874–75	1,721,565
1879–80	1,394,062
1884–85	1,235,200
1885–86	1,195,849

Acreage under Corn Crops.

The total quantity of land returned under wheat in the present year is 2,286,064 acres, or 192,254 acres (equal to 7·8 per cent.) less than in 1885, and a decrease of 390,974 acres or (14·6 per cent.) as compared with 1884, when the breadth was less than had previously been recorded. The area under *barley* in 1886 was 2,241,266 acres. This is a decrease of 16,080 acres, or 0·7 per cent. as compared with 1885; but it is to be observed that the present year's acreage is 72,446 acres, or 3·3 per cent. more than the acreage of 1884. *Oats* were sown on 3,081,701 acres, or 4·8 per cent. in excess of 1885. The substitution of barley, and to a smaller extent of oats for wheat, is frequently ascribed to the more remunerative prices obtainable for both these cereals.

Hops.

Notwithstanding the largely increased imports in 1885 as compared with the previous year, hops were planted on 69,967 acres, a decrease of 1,360 acres, or 1·9 per cent. under 1885, and nearly 2,000 less than the area so occupied in 1878, when the largest acreage on record was returned, but an increase of 709 acres, or 1·0 per cent. over 1884.

Green Crops.

In 1886 *potatoes* were planted on 553,990 acres, an increase of 5,259 acres, or 4·8 per cent. as compared with 1885, and a decrease of 11,058 acres, or 2·0 per cent. as compared with 1884.

Live Stock.

Sheep and lambs show a decrease of 361,197, or 2·2 per cent., and 652,104, or 6·5 per cent., respectively, as compared with 1885. In *horned cattle* the numbers exhibit an important increase in each of the several classes, the total number being now 6,646,785, or 48,821 (equal to 0·7 per cent.) more than in 1885, and 377,644 or 6·0 per cent.) more than in 1884, the figures of the present year being the largest yet recorded for cattle in these returns.

Irish Agriculture.

The total extent of land under crops (including meadow and clover) in 1886 is 5,033,846 acres, being an *increase* on the extent in 1885 of 76,719 acres, or 1·5 per cent. The amount under grass in 1886 is 10,160,292 acres as against 10,251,120 acres in 1885, or a *decrease* of 90,828 acres. The amount under *fallow* is 17,037 acres against 19,112 in 1885. The extent of land under *tillage* in 1886 is 2,939,708 acres against 2,922,359 acres in 1885, or an *increase* of 17,349 acres. In *cereal crops* there is a *decrease* compared with 1885 of 2,609 acres under *wheat*, of 5,664 acres under *oats*, and of 445 acres under *beans* and *pease:* but there is an *increase* of 2,361 acres under *barley*, and of 2,121 acres under *bere* and *rye*, showing a *total decrease* of 4,236 acres in the extent under cereal crops. In *green crops* the average under *potatoes* has *increased* by 2,566 acres, *turnips* by 2,289 acres and *mangel wurzel* by 234 acres. The extent under *cabbage decreased* by 2,050 acres, *vetches* and *rape* by 665 acres, and *carrots*, *parsnips*, and *other green crops* by 507 acres, leaving a net *increase* of 1,867 acres in the extent under green crops.

Live Stock in Ireland.

Between 1885 and 1886 there has been an *increase* in the number of horses and mules amounting to 1,920, whilst there has been a *decrease* in the number of cattle amounting to 44.824, of sheep amounting to 110,334, and of pigs amounting to 5,959. Of the 13,910,663 poultry enumerated in 1886, 815,198 were turkeys, 2,062,781 were geese, 2,856,951 were ducks, and 8,175,733 were ordinary fowl.

The Sea and Inland Fisheries of Ireland.

The number of boxes of salmon of 150 lbs. each, forwarded from Irish fisheries to the principal towns in England amounted in 1885 to 51,407, as compared with 46,955 in 1884; the number of boxes of herrings of 2 cwt. each so forwarded was 79,044, as compared with 76,663 in 1884; the number of boxes of mackerel of 2 cwt. each was 84,296, as compared with 83,370 in 1884; and the number of boxes of cod of 2 cwt. each so forwarded was 46,966, as compared with 46,237 in 1884. The value of these consignments in 1885 was estimated at 643,285*l*. The mackerel captured at the nine stations in Ireland mentioned in the report, by boats belonging to the United Kingdom, realised the sum of 134,684*l*.

Average Gazette Prices of British Wheat per Imperial Quarter in each Month in 1870, 1873, 1876, 1881, 1883, 1884, and 1885.

Months.	1870.	1873.	1876.	1881.	1883.	1884.	1885.
	s. *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*
January ..	43 8	55 9	44 9	42 5	40 2	38 7	33 7
February ..	41 3	56 4	43 1	41 9	40 11	37 3	32 8
March ..	41 5	55 6	43 0	42 7	42 3	37 4	31 10
April	42 7	54 10	44 11	44 6	41 11	37 5	34 1
May	44 6	56 0	45 1	44 5	43 2	37 9	36 8
June	47 5	58 7	47 5	44 6	42 10	37 2	33 6
July	50 10	59 6	48 3	46 5	42 2	37 0	33 8
August ..	53 10	60 6	46 0	48 6	43 6	36 11	33 5
September ..	47 3	64 2	46 8	52 3	41 10	33 9	31 3
October ..	47 0	60 10	46 6	47 1	40 5	32 3	30 11
November ..	50 1	60 9	47 11	45 11	40 3	31 5	30 11
December ..	52 4	61 8	49 9	44 7	39 6	31 1	30 6
The Year ..	46 10	58 8	46 2	45 4	41 7	35 8	32 10

4. POPULATION, PUBLIC EMPLOYMENT, AND VITAL STATISTICS.

Population of the United Kingdom in 1885 and 1886.

The estimated population of the United Kingdom in the middle of 1885 and 1886, exclusive of the Army, Navy, and Merchant Seamen abroad, was as follows:—

	1885.	1886.
England and Wales ..	27,499,041	27,870,586
Scotland ..	3,907,736	3,949,393
Ireland ..	4,918,338	4,887,439
Totals ..	36,325,115	36,707,418

Estimated growth of population .. 382,303

Births, Marriages, and Deaths.

The following table shows the total number of births, deaths, and marriages from 1871 to 1885:—

ENGLAND AND WALES.

Years.	Births.	Deaths.	Marriages.
1871	797,428	514,879	190,112
1872	825,907	492,265	201,267
1873	829,778	492,520	205,615
1874	854,956	526,632	201,010
1875	850,607	546,453	201,212
1876	887,968	510,315	201,874
1877	888,200	500,496	194,352
1878	891,906	539,872	190,054
1879	880,389	526,255	182,082
1880	881,643	528,624	191,965
1881	883,642	491,935	197,290
1882	889,018	516,654	204,405
1883	890,722	522,997	206,384
1884	908,584	531,951	204,205
1885	893,694	522,517	197,446

SCOTLAND.

1871	116,127	74,644	23,966
1872	118,873	75,741	25,580
1873	119,738	76,857	26,730
1874	123,795	80,676	26,247
1875	123,693	81,785	25,921
1876	126,749	74,122	26,503
1877	126,824	73,946	25,790
1878	126,707	76,775	24,333
1879	125,736	73,329	23,462
1880	124,652	75,795	24,489
1881	126,214	72,301	25,948
1882	126,182	72,966	26,574
1883	124,462	76,867	26,855
1884	129,041	75,128	26,061
1885	126,110	74,603	25,256

IRELAND.

Years.	Births.	Deaths.	Marriages.
1871	151,665	88,720	28,960
1872	149,292	97,577	27,114
1873	144,377	97,537	26,270
1874	141,288	91,961	24,481
1875	138,320	98,114	24,037
1876	140,469	92,324	26,388
1877	139,659	93,543	24,722
1878	134,117	99,629	25,284
1879	135,328	105,089	23,254
1880	128,086	102 906	20,363
1881	125,847	90,035	21,826
1882	122,648	88,500	22,029
1883	118,163	96,228	21,368
1884	119,195	87,564	22,670
1885	115,964	90,833	21,329

Police Force in the United Kingdom.

The strength of the Police Force in 1885 was as follows: in England and Wales, 35,608; Scotland, 3,782; Ireland, 14,134. In 1874 the numbers stood thus: England and Wales, 28,870; Scotland, 3,007; Ireland, 12,545.

The Army.

The strength of the Regular Army at home and abroad in 1885 was as follows:—Officers: at home, 3,248; abroad, 3,827; total, 7,075. Non-commissioned officers and men: at home, 88,331; abroad, 102,658; total, 190,989. Total of officers and men: at home, 91,579; abroad, 106,485. General total, 198,064.

A Census of Children.

The Report of the Education Department contains the following table of the number of children of what is technically termed the school age, viz., from 5 to 13, with the percentage of them at each age found on the register of rate-aided schools:—

Age.	No. of Children.		Percentage on Registers.	
	1884.	1885.	1884.	1885.
5– 6	591,334	599,317	73·50	73·59
6– 7	577,257	585,050	85·92	85·98
7– 8	563,322	570,927	91·97	90·95
8– 9	549,663	557,083	92·91	94·68
9–10	536,371	543,612	95·35	95·32
10–11	523,600	530,669	93·07	95·17
11–12	511,347	518,250	86·12	86·03
12–13	500,308	507,063	66·16	67·98
	4,353,202	4,411,971	85·67	86·23

Lunatics.

The number of lunatics, idiots, and persons of unsound mind in England and Wales included in the last returns amounted in all to 80,156, of which number 36,087 were men and 44,069 were women. Of these, 7,792 were classed as private patients, 71,663 came under the head of paupers, and 701 were criminals. The private class includes not only such patients as are paid for out of their own pecuniary means, or those of their relations and friends, but also 570 patients who were maintained by the State at the Royal India Asylum, at the Yarmouth Naval Hospital, at the Netley Military Hospital, and at Grove Hall, Bow. The pauper class comprises all those who, according to the statutory definition, "are maintained wholly or in part by, or chargeable to, any parish, union, or county." The above total shows, as compared with that of the previous year, an increase of 41 in the private class, an increase of 448 in the pauper class, and a decrease of 37 in the criminal class. The total increase of the year, therefore, amounts to 452, a figure considerably lower than the average annual increase of past years. The ratio of fresh admissions to the population for the past year was 4·85 per 10,000, whilst in 1884 the ratio per 10,000 was computed at 5·16, and that for the last ten years has shown an average of 5·19. The actual number of fresh admissions into the various asylums, hospitals, and licensed houses during the year amounted to 13,557, and the number of patients discharged as recovered during the year amounted to 5,610. The average number of recoveries varies but little from year to year; and during the year under review it amounted to 38·14 per cent. on the admissions in the case of men, and to 45·56 per cent. in the case of women. The number of deaths per 100 of the daily average number of patients of all classes resident in the year was 9·37, being 10·70 in the case of males and 8·24 in the case of females. This death-rate, however, varies very considerably among the different classes of establishments, being highest in the metropolitan licensed houses, with a figure of 10·46 per cent., and lowest in the criminal asylum at Broadmoor, where in the year it amounted to only 2·55 per cent. This lower death-rate is also noticeable among the idiots, amongst whom the death-rate was 3·58 per cent. It would appear that persons, independent of sex, are most liable to go mad at ages varying from 35 to 45, if they are unmarried, whilst amongst married people the tendency to become insane increases in proportion as they reach a riper age. The proportion of those having suicidal propensities, to the total number admitted is estimated at about 28 per cent.; but this form of insanity varies considerably according to the age and sex of the patients, and to the fact of their being single, married, or widowed. During the past year 14 deaths by suicide were reported from the different asylums. The average cost per head for maintaining the patients in county and borough asylums during the past year was 9*s.* 0¾*d.* per week, and the visiting board in their reports speak generally in terms of approval of the dietary in the various asylums. Comparing the average weekly cost per patient at present with that for the year 1873 (10*s.* 5¾*d.*, there is a saving of 1*s.* 5*d* over the rate) which obtained 12 years ago. And it is further pointed out that this satisfactory reduction in the expenses of keeping up these establishments represents an annual saving of 3*l.* 13*s.* 8*d* per patient, or a total gain to the country of somewhere about 180,000*l.* for the year.

Merchant Shipping Service.

The following table shows the number of persons employed in registered sailing and steam vessels (exclusive of river steamers) of the United Kingdom in the Home and Foreign trade from 1874 to 1885:—

Year.	Vessels.	Tons.	Persons employed (exclusive of masters).
1874..	20,872	5,864,588	203,606
1875..	20,191	5,891.692	199,667
1876..	20,349	5,996,152	198.638
1877..	20,319	6,115,638	196,562
1878..	20,094	6,236,124	195,585
1879..	20,029	6,249,833	193,548
1880..	19,972	6,344,577	192,972
1881..	19,311	6,490,953	192,903
1882..	18,966	6,715,030	195,937
1883..	18,912	7,026,062	200,727
1884..	18,744	7,083,944	199,654
1885..	18,791	7,209,163	198,781

Pauperism.

The following table shows the number of paupers (exclusive of vagrants) in receipt of relief in the several unions and parishes under boards of guardians, in England and Wales, on the 1st January in each year, 1881-86:—

1st January in each year.	Total.		
	In-door.	Out-door.	Total.
1881	189,438	613,688	803,126
1882	188,433	609,181	797,014
1883	190,386	608,910	799,296
1884	187,593	586,717	774,310
1885	190,184	593,971	784,155
1886	194,446	613,193	807,639

5. ACCIDENTS AND CRIMES.

Railway Accidents.

The Annual Report of the Board of Trade states that during the year 1885, the number of persons killed in the working of the railways was 957, and the number of injured 3,467 Of the above numbers, 102 persons killed and 1,129 persons injured were passengers; but of these only six were killed and 436 injured in consequence of accidents to or collisions between trains; the deaths of the remaining 96 passengers and the injuries to 693 are returned as due to a variety of other causes, but more especially to a want of caution on the part of the individuals themselves. Of the remainder, 451 killed and 2,117 injured were officers or servants of the railway companies, or of contractors. Of suicides there were 51; of trespassers, 250 were killed and 126 injured; of persons passing over the railway at level crossings, 58 were killed and 21 injured; and of other persons, from miscellaneous causes, 41 were killed and 74 injured. In addition to the above, the companies have returned 40 persons killed and 3,555 injured from accidents on their premises, which cannot be considered as "railway accidents," as they were not connected with the movement of railway vehicles. With regard to railway servants, 36 were killed and 267 injured while employed in coupling and uncoupling vehicles; 102 were killed and 969 injured while employed in various shunting operations: 12 were killed and 59 injured by being caught between vehicles; 15 were killed and 50 injured by falling between the train and platform; 107 were killed and 126 injured while working on the permanent way and sidings: and 79 were killed and 108 injured while walking, crossing, or standing on the line on duty.

Deaths from Hydrophobia.

The Chief Commissioner of Police reports that during the period from January, 1885, to May, 1886, the number of mad dogs in the metropolis which came under the notice of the metropolitan police amounted to 495. The lowest number was in January, 1885, when there were only 8. From this date the number of cases varied for each month as follows:—February, 10; March, 22; April 20; May, 34; June, 38; July, 47; August, 28; September, 31; October, 31; November, 58; December, 46; January, 1886, 27; February, 14; March and April, 29; and May, 23. The deaths from hydrophobia, which are taken from the Registrar-General's returns, numbered 26 up to December, 1885, the greatest number being in October and November, when there were five in each month. Between January and May, 1886, there were seven deaths.

Metropolitan Police Force.

The strength of the Metropolitan Police in 1885 stood as follows:—25 superintendents, 634 inspectors, 1,133 sergeants, and 11,527 constables, total 13,319.

Drunkenness in London.

In the year 1885 15,636 persons were charged as drunk and disorderly, being a decrease of 1,567 cases over the previous year. Simple drunkenness decreased from 7,934 in 1884 to 6,932 in 1885, while disorderly characters decreased from 4,473 in 1884 to 4,271 in 1885. The average proportion per 1,000 of the estimated population of persons apprehended for drunkenness and disorderly conduct from 1860 to 1870 was 5·576. From 1870 to 1880 it increased to 7·156, and the average for the past five years has been 5·082. The proportion was 4·883 in 1884 and 4·295 in 1885.

Stolen Property.

The reported loss of property stolen during the year 1885 in the Metropolis was 112,336*l.*, an increase on the previous year of 3,930*l.*; of the whole reported loss 19,081*l.* was recovered, leaving the nett loss 93,255*l.* The loss on property stolen was distributed amongst the following offences:—burglaries, 1,603*l.*; housebreakings, 10,854*l.*; larcenies by servants and lodgers, 12,274*l.*; other larcenies, 43,236*l.*: embezzlements and frauds, 10,545*l.*; other offences, 14,743*l.* More than one-half of the offences of burglary and housebreaking were effected through doors and windows left open or insecure, and 1,065 houses with no person in charge were entered and robbed. The number found open by the police was 28,850, being 366 more than in the previous year. The total amount of property stolen was distributed amongst the following offences:—burglaries, 1,959*l.*, or 1·7 per cent.; housebreakings, 11,367*l.*, or 10·1 per cent.; larcenies, 69,184, or 61·6 per cent.; embezzlements and frauds, 12,440*l.*, or 11·1 per cent.; other offences, 17,386*l.*, or 15·5 per cent.

Street Accidents.

The number of fatal accidents in the London streets which came under police notice were 127 in 1884 and 127 in 1885, and according to the more comprehensive returns of the Registrar-General, increased from 265 in 1884 to 266 in 1885. The number of persons injured in the streets increased from 3,952 to 3,986. A large proportion of the sufferers are not the foot passengers in the streets, but the persons riding and driving. Proceedings were taken against 842 persons for furious riding or driving; 784 were convicted and 58 discharged. 332 of these person so convicted were drivers of hackney carriages.

6. EDUCATION, SCIENCE, AND ART.

Elementary Schools.

The Committee of Council on Education, in their annual report, state that in the year ending 31st August, 1885, the inspectors visited 18,895 day schools in England and Wales, to which annual grants were made, containing 28,356 departments under separate head teachers, and furnishing accommodation for 4,998,718 scholars. There were on the registers of these schools the names of 4,412,148 children, of whom 1,370,745 were under 7 years of age; 2,860,429 between 7 and 13; 141,554 between 13 and 14; and 39,420 above 14. Of these scholars 3,992,074 were present on the day of the inspectors' visit to their respective schools, and 3,371,325 were, on an average in daily attendance throughout the year. The number of scholars whose names had been on the school registers for the last 22 weeks of the school year was, in infant schools and classes, 1,063,776; in schools and classes for older scholars, 2,632,751. The number of older scholars presented for examination in Standards I—VII was 2,379,055; and while of these 1,617,243 passed the prescribed tests without failure in any one of the three subjects, 91·86 (90·78) scholars out of every 100 examined passed in reading, 83·83 (82·42) in writing, and 79·74 (77·59) in arithmetic. The figures within brackets show the proportion who passed in the previous year, including those examined under the Code of 1881. While the increase of the population during the year is estimated at 1·35 per cent., the accommodation has increased by 171,980 school places (or 3·56 per cent.); the scholars on the registers by 74,827 (1·73 per cent.); the average attendance by 98,201 (3 per cent.). The local effort which has resulted in this improvement may be measured by the continued support derived from voluntary contributions (756,828*l.*), by an advance in the contributions from rates to the maintenance of Board schools from 915,474*l.* to 1,140,946*l.* The school pence have risen from 1,734,115*l.* to 1,791,084*l.* The annual Government grants to elementary day schools rose in the year from 2,722,351*l.* to 2,867,653*l.*, or from 16*s.* 7½*d.* to 17*s.* per scholar in average attendance. The night schools examined during the year were 839 in number; 24,233 scholars above 12 years of age were, on an average, in attendance each night; 29,023 scholars were qualified by attendance for examination. Of these, 21,989 were actually examined, and out of every 100 scholars so examined, 94·63 passed in reading, 76 in writing, and 48·24 in arithmetic. The additional subjects of examination were taken in 219 schools by 5,222 scholars, of whom 3,885 passed, 780 of them in two subjects.

Training Colleges.

The inspectors found 40,706 certificated teachers at work in the aided schools visited, while the 42 training colleges, from which the supply of such teachers is mainly recruited, were attended in 1885 by 3,234 students. These students (with a few exceptions), and 3,589 acting teachers, were examined for certificates in December last. At Midsummer, 1885, 4,903 candidates were examined for the 1,696 vacancies declared in the training colleges, of whom 3,186 passed creditably, and 1,635 are now in their first year of residence, along with 1,624 students of the second year.

Annual Parliamentary Grants for Education in England from 1839 to 1886.

1839–1841	£30,000	1867	£705,865
1842–1844	40,000	1868	781,324
1845	75,000	1869	840,711
1846–1850	115,000	1870	914,721
1851	150,000	1871	1,458,402
1852	160,000	1872	1,551,560
1853	260,000	1873	1,299,803
1854	263,000	1874	1,356,852
1855	396,921	1875	1,548,563
1856	451,213	1876	1,707,055
1857	541,233	1877	1,910,000
1858	663,435	1878	2,149,208
1859	836,920	1879	2,481,168
1860	798,167	1880	2,535,967
1861	803,794	1881	2,683,953
1862	842,119	1882	2,749,863
1863	804,002	1883	2 938,930
1864	705,404	1884	3,016,167
1865	693,078	1885	3,181,875
1866	694,550	1886	3,302,772

School Supply.

The Committee of Council on Education state that in the twelve years ending on the 31st of December, 1882, building grants to the amount of 312,200*l.* have been paid by the Education Department, on the completion of the erection or enlargement of 1,572 schools, and 933 teachers' residences, affording new or improved accommodation for 280,146 scholars. These grants have been met by local contributions to the amount of 1,348,169*l.* The average cost of erecting voluntary schools, with residences for the teachers, has been about 5*l.* 7*s.* per scholar. This includes, as a rule, the value of the sites, very often given gratuitously in the case of schools of this class. The great majority of the remaining 4,747 voluntary schools, with seats for some 1,239,000 children, which have come under inspection since 1870, have been erected, enlarged or improved, without Government aid, at a cost to the promoters of at least 6,000,000*l.* The

school boards have availed themselves freely of the power of borrowing, on the security of the rates, given by the Acts of 1870 and 1873. Up to the 1st of April, 1886, the Education Department had sanctioned 6,459 loans, amounting to 18,452,556*l.* 15*s.* 1*d.* to 1,765 school boards (14,226,809*l.* 14*s.* 11*d.* from the Public Works Loan Commissioners; 4,225,747*l.* 0*s.* 2*d.* from the Metropolitan Board of Works and in the open market) by means of which new accommodation will be furnished for some 1,489,729 scholars. The estimated cost per child is thus about 12*l.* 7*s.* 8*d.* (including cost of sites), but the amount of the loan applied for is generally somewhat in excess of the sum eventually spent.

Progress of Education in Great Britain.

The following table exhibits the progress of education in Great Britain in schools under Government inspection from 1874 to 1885, distinguishing England and Wales from Scotland:—

Years ended 31st August.	Number of Schools Inspected.	Number of Children who can be Accommodated.	Average number of Children in Attendance.	Number of Children present at Inspection.
	England and Wales (including Isle of Man Schools from 1874 to 1877; and Roman Catholic Schools in Scotland, from 1874 to 1885).			
1874	13,084	2,952,479	1,710,806	2,093,180
1876	14,875	3,483,789	2,007,732	2,448,299
1877	15,187	3,653,418	2,150,683	2,633,198
1878	16,293	3,942,337	2,405,197	2,944,127
1879	17,166	4,142,224	2,594,995	3,122,672
1880	17,614	4,240,753	2,750,916	3,268,147
1881	18,062	4,389,633	2,863,535	3,372,990
1882	18,289	4,538,320	3,015,151	3,542,742
1883	18,540	4,670,443	3,127,214	3,705,388
1884	18,761	4,826,738	3,273,124	3,925,045
1885	18,895	4,998,718	3,371,325	3,992,074
	Scotland (exclusive of Roman Catholic Schools, included above). from 1874 to 1885.			
1874	2,587	391,592	274,588	314,576
1876	2,912	462,986	332,545	382,224
1877	2,931	535,949	360,413	417,699
1878	2,998	563,481	377,257	439,021
1879	3,003	585,629	385,109	447,801
1880	3,056	602,054	404,618	470,581
1881	3,074	612,483	409,966	475,021
1882	3,073	619,086	421,265	490,372
1883	3,090	633,701	433,137	498,514
1884	3,131	655,672	448,242	518,844
1885	3,081	660,101	471,175*	521,417
	Total for Great Britain.			
1874	15,671	3,344,071	1,985,394	2,407,756
1876	17,787	3,946,775	2,340,227	2,830,523
1877	18,118	4,189,367	2,511,096	3,050,897
1878	19,291	4,505,818	2,782,454	3,383,148
1879	20,169	4,727,853	2,980,104	3,570,473
1880	20,670	4,842,807	3,155,534	3,738,728
1881	21,136	5,002,116	3,273,501	3,848,011
1882	21,362	5,157,406	3,436,416	4,033,114
1883	21,630	5,304,144	3,560,351	4,203,902
	21,892	5,482,410	3,721,366	4,443,889
	21,976	5,658,819	3,842,500	4,513,491

* *The figures for* 1885 *are those of Schools on the Annual Grant List.*

Elementary Schools (Relative Cost).

The following table shows the amount of the income, expenditure, and grant of the Voluntary and Board schools in certain localities during 1885:—

	Income per scholar in average attendance from		Expenditure per scholar in average attendance.		Grant earned per scholar in average attendance
	School pence.	Voluntary contributions.	For salaries.	Total.	
Voluntary Schools.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Church of England	0 10 8	0 7 1¼	1 8 0¾	1 15 10¼	0 16 6½
Wesleyan..	0 16 1	0 2 5½	1 8 11	1 16 2¾	0 17 1½
Roman Catholic..	0 9 5½	0 6 9¾	1 2 9¾	1 12 7¾	0 17 1¾
British and Undenominational	0 13 7¾	0 5 7½	1 9 3¾	1 17 4	0 17 1½
Birmingham	0 10 8½	0 4 2¾	1 4 7¾	1 12 6	0 17 0¾
Liverpool..	0 12 11¾	0 2 10	1 4 6½	1 12 11½	0 17 5¼
London	0 13 6	0 8 9¾	1 11 2	1 2 3¾	0 17 1
Manchester	0 12 7½	0 5 7¼	1 5 5¾	1 15 8½	0 17 4¼
Sheffield	0 13 9¼	0 3 7	1 4 11¼	1 12 4¾	0 15 2
England and Wales	0 11 2¾	0 6 7¾	1 7 10	1 15 9½	0 16 8¼
		Rates.			
Board Schools.					
Birmingham	0 6 4½	0 15 8½	1 17 7	2 1 0¼	0 18 5½
Bradford	0 15 5	0 13 3	1 18 0½	2 8 0	0 18 8
Brighton	0 10 1½	0 17 0	1 16 7½	2 6 5½	0 19 0¼
Bristol	0 7 10¾	0 16 7¾	1 8 4¼	1 18 6¼	0 18 3
Hull	0 9 10¾	0 6 1¼	1 4 8¾	1 11 0½	0 16 11½
Leeds	0 9 11¾	0 14 1¼	1 11 9¾	2 0 2¾	0 18 4½
Liverpool..	0 13 6½	0 10 4½	1 12 9½	2 3 1¾	0 19 7¼
*London	0 7 8½	2 1 10½	2 15 5¾	3 7 10¼	0 18 1¾
Manchester	0 15 4¾	0 6 9	1 8 2½	1 19 7	0 18 8½
Sheffield	0 13 6	0 8 6½	1 10 1¾	1 9 6½	0 17 4½
England and Wales	0 9 4	0 19 0¾	1 15 9	2 5 4	0 17 7

School Maintenance.

The following table shows the cost of "maintenance" per child in average attendance in the Public Elementary Schools of the United Kingdom in 1885:

1885.	England and Wales.	London.	England, including London.	England, excluding London.	Wales.	Scotland.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
In Board Schools ..	2 5 4	3 7 10¾	2 6 2¼	1 18 6	1 15 9½	2 2 2½
In Voluntary Schools ..	1 15 9½	2 2 3¾	1 15 10¾	1 15 4¼	1 13 0	1 17 6
These charges were met—						
In Board Schools—						
By the ratepayers ..	0 19 0¼	2 1 10½	0 19 8½	0 11 10½	0 11 5½	0 10 11¾
By the children ..	0 9 4	0 7 8¼	0 9 5¼	0 10 0¾	0 8 0¼	0 13 0½
By endowment ..	0 0 0¾	0 0 0	0 0 0¾	0 0 1	0 0 0¼	0 0 6¾
By miscellaneous receipts	0 0 6¼	0 0 10	0 0 6¾	0 0 5¼	0 0 1½	0 0 4
In Voluntary Schools—						
By the subscribers ..	0 6 7¾	0 8 9¾	0 6 7¾	0 6 5½	0 6 9	0 6 3½
By the children ..	0 11 2¾	0 13 6	0 11 4	0 11 2	0 8 8	0 11 9¼
By endowment ..	0 1 4¾	0 2 4	0 1 4¾	0 1 4	0 1 2	0 2 5
By miscellaneous receipts	0 0 4¾	0 0 8¼	0 0 4¾	0 0 4¼	0 0 3½	0 0 4½

* *During the past year a considerable addition was temporarily made to the "rates" required by the School Board for London in order to carry out a scheme for the remuneration of the teachers by fixed salaries, instead of partly by salary and partly by a share of the Government Grant.*

Singing in Elementary Schools.

The Committee of Council on Education in their last report state that the grant at the rate of 1*s.* for singing by note has been earned in 5,903 departments (27·04 per cent.), with an average attendance of 1,025,208 (42·35 per cent.); at the rate of 6*d.* for singing by ear, in 15,750 departments (72·14 per cent.), with an average attendance of 1,386,592 (57·28 per cent.). The grant was not paid in 178 departments (with an average attendance of 8,762), in 113 of which singing was not a subject of instruction. The average "numbers for payment" in each department were in those paid at the rate of 1*s.*, 174; in those paid at the rate of 6*d.*, 88; and for each department where the grant was not paid, 49.

Teaching Power in Elementary Schools.

The 18,895 elementary day schools in England and Wales, inspected in 1885, provided accommodation, in 28,356 departments, for 4,998,718 scholars, and 40,706 certificated teachers were employed in their instruction. The average daily attendance in these schools amounted to 3,371,325. There were on the 31st of December, 1869, 12,842 pupil-teachers, 1,236 assistant teachers, and 12,027 certificated teachers at work in schools under inspection. These numbers have now risen to 25,750 pupil-teachers, 16,618 assistant, and 40,706 certificated teachers; while the pupil teachers in the first year of their service have increased from 3,392 in 1869 to 5,849 in 1885.

Teachers' Salaries.

The average salary of a certificated master, which in 1870 was 94*l.* 2*s.* 1*d.*, is now 120*l.* 19*s.* 2*d.*; that of a schoolmistress, was 57*l.* 11*s.* 1*d.* in 1870, and is now 73*l.* 15*s.* 9*d.* In addition to their other emoluments, 6,119 out of 15,732 masters, and 5,292 out of 23,704 mistresses, are provided with residences free of rent; these averages are calculated upon the whole of the certificated teachers, whether principal or assistant. In the metropolitan district, in the past year, the average salary of 381 masters (principal teachers) in voluntary schools was 152*l.* 0*s.* 9*d.*, and that of 329 principal masters in board schools 257*l.* 6*s.* 8*d.*; while 633 schoolmistresses in board schools enjoyed an average income of 192*l.* 6*s.* 3*d.* as compared with 88*l.* 11*s.* 9*d.* that of 822 teachers in voluntary schools. The salaries of 9 masters in voluntary schools, and of 132 in board schools, amounted to 300*l.* a year and upwards, while 7 schoolmistresses in voluntary, and 269 in board schools, had salaries of 200*l.* and upwards.

Female Teachers.

There is a great and increasing tendency to employ female teachers in elementary schools. In 1869, for every 100 teachers of each class, 48 certificated teachers, 60 assistant teachers, and 57 pupil-teachers were females; these proportions have increased in 1885 to 60 certificated teachers, 69 assistant teachers, and 73 pupil-teachers. The number of female pupil-teachers in 1869 was 7,273; they now number 18,796, an increase of 158 per cent. The male pupil-teachers, who numbered 5,569 in 1869, have increased to 6,954, or by about 25 per cent.

The National Gallery.

As nearly as can be calculated, the National Gallery was visited by 831,539 persons on the public days during the year, showing a daily average attendance on such days (207 in number) of 4,017. These numbers must, however, be only regarded as approximate, no accurate means of checking them being in use. On students' days (Thursdays and Fridays), when the number of visitors entering by payment is registered by a turnstile, 52,378 persons were admitted between the 1st of January and the 31st December, 1885; the admission fees (at 6*d.* each) amounting to 1,309*l.*, as compared with 924*l.* 5*s.* 6*d.* received in 1884. The amount annually realised by admission fees is paid into Her Majesty's Exchequer under the head of "extra receipts." The total number of students' attendances at the Gallery on Thursdays and Fridays throughout the year was 26,736. Thirteen pictures were purchased during the year 1885, and 20 have been added to the Gallery by bequest or presentation. Among the pictures purchased during the year are two well-known paintings from the Blenheim Palace collection, namely, "The Virgin and Child, attended by John the Baptist and St. Nicholas of Bari" (commonly known as the "Madonna degli Ansidei"), by Raphael Sanzio, purchased for 70,000*l.*, and "An Equestrian Portrait of Charles I., King of England," by Sir Anthony Vandyck, purchased for 17,500*l.* Among the presentations to the Gallery is one from Mr. G. F. Watts, R.A., of "A Portrait of a Boy," ascribed to François Clout. Under the head of bequests and donations to the Gallery is 10,000*l.* under the will of the late Mr. John Lucas Walker, to be spent in the purchase of a picture or pictures for the national collection, the picture to be labelled with the donor's name. Independently of partial studies, 722 oil-colour copies of pictures have been made, viz., 468 from the works of 63 old masters, and 254 from the works of 26 modern painters.

7. EMIGRATION.

The Emigration and Immigration of 1885.

The chief feature in the emigration and immigration for the year 1885 is the further decline of emigration and the excess of emigrants over immigrants, though the decline is not so marked as that in 1884. The proportion of emigration to population is a high one, being 0·57 per cent. As a general rule, an increase of immigration accompanies an increase of emigration, and reaches its maximum in those years when the emigration begins to fall off from the maximum it has itself reached, both in succeeding years declining. Years of low emigration, and of a low excess of emigrants over immigrants coincide, as a rule, with years of dull trade in the United States, which absorbs most of the emigrants; and emigration falls off in the United Kingdom and in other old countries when trade is *dull*. A revival of emigration will be a sure sign of returning prosperity in the United States and other new countries. The United States, one year with another, still absorbs about 66 per cent. of the emigrants of the United Kingdom, and the proportion of the Irish emigration to the total, which in some years when Irish emigration was large, exceeded 60 per cent., has again become about 30 per cent. Ireland has less than a seventh of the population of the United Kingdom, but the Irish emigration is nearly a third of the total, and the lowest proportion it reached was about a fourth in the years 1876–79.

Comparing the figures as to emigration and immigration for 1884 and 1885, we have the following comparison:—

EMIGRATION IN 1884 AND 1885.

—	Total including foreigners.	Emigrants of British and Irish origin only.
Emigrants, 1884 ..	303,901	242,179
,, 1885 ..	264,385	207,644
Decrease, 1885.	39,516	34,535

IMMIGRATION.

—	Total including foreigners.	Immigrants of British and Irish origin only.
Immigrants, 1884	123,466	91,356
,, 1885	113,549	85,468
Decrease, 1885.	9,917	5,888

Sixteen Years' Emigration.

The following table shows the number of emigrants of British origin only, from the United Kingdom to countries out of Europe, from 1870 to 1885:—

YEARS.	EMIGRANTS TO				
	British North American Colonies.	United States.	Australia and New Zealand.	Other Places.	Total.
1870	27,168	153,466	16,526	5,351	202,511
1871	24,954	150,788	11,695	5,314	192,751
1872	24,382	161,782	15,248	9,082	210,494
1873	29,045	166,730	25,137	7,433	228,345
1874	20,728	113,774	52,581	10,189	197,272
1875	12,306	81,193	34,750	12,426	140,675
1876	9,335	54,554	32,196	13,384	109,469
1877	7,720	45,481	30,138	11,856	95,195
1878	10,652	54,694	36,479	11,077	112,902
1879	17,952	91,806	40,959	13,557	164,274
1880	20,902	166,570	24,184	15,886	227,542
1881	23,912	176,104	22,682	20,304	243,002
1882	40,441	181,903	37,289	19,733	279,366
1883	44,185	191,573	71,264	13,096	320,118
1884	31,134	155,280	44,255	11,510	242,179
1885	19,838	137,687	39,395	10,724	207,644

General Statement of Immigration in 1885.

The following table shows the number of persons who arrived in this country from places out of Europe, so far as recorded, showing their nationality and the countries whence they came, in 1885:—

Nationality.	United States.	British North America.	Australasia.	C. of Good Hope and Natal.	All other places.	Total for 1885.	Total for 1884.
British and Irish .	57,604	9,321	7,946	4,574	6,023	85,468	91,356
Foreigners ..	23,846	758	326	898	1,178	27,006	32,007
Not distinguished	—	—	—	—	1,075	1,075	103
Total.. ..	81,450	10,079	8,272	5,472	8,276	113,549	123,466

Sex and Conjugal State of British and Foreign Emigrants.

The following table gives an account of the number of emigrants of British and Foreign nationality of each sex leaving the United Kingdom in 1885, and the conjugal condition of the adults:—

BRITISH.

Adults:		
Married	Males	19,644
	Females	25,831
Single	Males	84,577
	Females	43,681
Conjugal condition not stated . .	Males	—
	Females	—
Total		173,753
Children from 1 to 12 years and Infants .	Males	17,525
	Females	16,386
British Total		207,644

FOREIGN.

Adults:		
Married	Males	25,429
	Females	32,313
Single	Males	109 006
	Females	53,171
Conjugal condition not stated . .	Males	175
	Females	14
Total adults		220,108
Children from 1 to 12 years and infants .	Males	23,259
	Females	21,018
Grand total		264,385

Occupation of Emigrants.

The following is a statement of occupations of adult passengers of each sex leaving the United Kingdom in 1885, so can be ascertained:—

Occupation.	Total.
Adult Males:	
Agricultural Labourers, Gardeners, Carters, &c.	9,805
Bakers, Confectioners, &c. . . .	455
Blacksmiths and Farriers . . .	257
Boot and Shoe Makers	303
Braziers, Tinsmiths, Whitesmiths, &c.	76
Brick and Tile Makers, Potters, &c.	46
Bricklayers, Masons, Plasterers, Slaters, &c.	1,192
Builders	124
Butchers, Poulterers, &c. . . .	221
Cabinetmakers and Upholsterers .	113
Carpenters and Joiners	1,467
Clerks and Agents	3,151
Clock and Watch Makers and Jewellers.	117
Coachmakers and Trimmers . . .	41
Coopers	21
Domestic Servants	606
Engine Drivers, Stokers, &c. . .	150
Engineers	743
Farmers and Graziers	6,968
Founders, Iron and Brass Moulders, &c.	123
Gentlemen, Professional Men, Merchants, &c.	10,969
Labourers, General	49,312
Mechanics	5,362
Millers, Maltsters, &c.	119
Miners and Quarrymen	4,111
Painters, Paperhangers, Plumbers, and Glaziers	674
Printers	156
Saddlers and Harness Makers . .	46
Sawyers	34
Seamen	397
Shipwrights	28
Shopkeepers, Shopmen, Warehousemen, &c.	1,374
Smiths, General	179
Spinners and Weavers	262
Tailors	396
Tanners and Curriers	32
Turners	38
Wheelwrights and Millwrights . .	52
Army and Navy:—Officers . . .	400
,, ,, Men	54
Other Trades and Professions . .	1,561
Males:—Occupation not stated . .	33,075
Adult Females:	
Domestic and Farm-Servants, Nurses, &c.	23,175
Gentlewomen and Governesses . .	158
Milliners, Dressmakers, Needlewomen, &c.	625
Shopwomen	48
Spinners and Weavers	95
Other Trades and Professions . .	359
Females:—Occupation not stated .	61,038
Total Adults.	220,103

8. THE POST OFFICE.

Revenue and Expenditure.

The gross revenue and expenditure for the year ended 31st March, 1886, were as follows:—

	£	£	Increase (+) or decrease (−) on 1884–5. £
The gross Revenue for the year was 10,278,865*l.*, arrived at thus:—			
Postages on letters, parcels, post cards, newspapers, &c.	..	7,886,898	+257,078
Commission on money orders	165,568		
Commission on postal orders	114,538		
Value of unclaimed money orders	3,600		
		283,706	+ 7,120
Savings bank profits	..	321,010	− 20,648
Revenue from telegraphs	..	1,787,251	+ 2,832
		10,278,865	
The expenditure, including expenses incurred by other Departments, was:—			
For postal service, including money order and postal order business	4,828,523	..	+130,329
„ packet service	658,201	..	+ 39,182
„ savings bank	256,401	..	+ 7,783
„ telegraph service*	1,826,858	..	+ 6,504
		7,569,983	
The net revenue was, therefore		2,708,882	+ 62,584

The Work of 1885.

The estimated number of letters delivered in the United Kingdom during the twelve months ended 31st March was 1,403,547,900; of post cards, 171,290,000; of book packets and circulars, 342,207,400; of newspapers, 147,721,100; giving a total of 2,064,766,400. The number of parcels sent by post was 26,417,422; making a grand total of deliveries of 2,091,183,822. The number of registered letters was 11,129,060, being a decrease of 1·5 per cent. The yearly increase in the population is estimated to be about 1 per cent., while the increase in the correspondence is 3·8 per cent., or three times the rate of increase in the population. The average number of letters to each person in the United Kingdom, which stood at 15 in 1854, and 22 in 1864, rose to 38·6 in 1886. Including post cards, the average per person was 42·13, a far larger proportion than in any other country.

Post Offices and Letter Boxes.

The number of Post Offices in the United Kingdom has been increased by 371, making the total number 16,805. 860 letter boxes have been added, bringing the total number of receptacles of all sorts for letters up to about 34,280.

Officers Employed.

The total number of officers on the permanent establishment of the department is about 51,500; the number added during the year having been 3,310. The number of females included in this total is 3,456.

Inland Parcel Post.

The number of parcels carried by the department increases steadily, and the Postmaster-General states that during the year the number of parcels carried shows an increase of nearly 3½ millions. 26,417,422 parcels were posted, of which 22,198,000 were posted in England and Wales, 2,690,000 in Scotland, and 1,527,000 in Ireland. For the 26,417,422 parcels the gross amount of postage was 591,938*l.* Of this amount 55 per cent. on railway-borne parcels was paid to railway companies, amounting to 298,944*l.*, and the Post

* The annual interest on the capital sum of 10,880,571*l.* raised by the Government for the purchase of the Telegraphs, amounting to 326,417*l.*, is not borne on the Post Office votes.

Office share was, the Postmaster-General states, 292,994*l.*, or 2·66*d.* per parcel. The business is still increasing, and the heaviest postings of parcels occurred on Dec. 31st, when 14 tons weight of catalogues were posted by one Company in London, carrying postage to the amount of over 260*l.* The new scale of weights and rates, extending the maximum weight from 7 lbs. to 11 lbs., and fixing the postage at a minimum of 3*d.*, increasing by 1½*d.* per pound to a maximum of 1*s.* 6*d.*, came into operation on May 1st, 1886. The first despatch of Foreign and Colonial parcels took place on 1st of July, 1885. The total number despatched up to March 31st was 71,900, and the number received was 40,800. The largest business was done with Germany, with which country 46,000 parcels were exchanged during six months; 36,000 parcels were exchanged with India in a similar period. The new system of insurance and of compensation for the loss or damage of Inland Parcels, which began on the 1st of May, gives compensation not exceeding 1*l.* where no insurance fee is paid; where an insurance fee of 1*d.* or 2*d.* is paid, compensation is given to the amount of 5*l.* or 10*l.* During the first month 17,600 parcels were insured, producing 87*l.*, while the compensation paid was only 6*l.*

Telephone Exchanges and Pneumatic Tubes.

The 27 Telephone Exchanges have now 1,255 subscribers. The total length of pneumatic tubing in London connecting the Central Office with 37 other offices, is over 27 miles; the longest distance between any two of the Offices is 2 miles 339 yards, and the rate of speed varies from 17 to 34 miles an hour.

Postal Curiosities.

Among the contents of parcels stopped as contrary to the regulations were two hens, eight mice, and two hedgehogs. Among the complaints was one made at Liverpool, that a packet containing a bottle of wine and a box of figs had been duly posted, but not delivered. Upon enquiry the sender found that the person to whom the packet was entrusted to post had eaten the figs and drunk the wine. Also a letter containing a cheque was alleged to have been stolen. It was ultimately found amongst the straw of a kennel torn into pieces, but no pieces missing. The postman had duly delivered the letter, having, at the request of the addressee, pushed it under the front door, and some puppies had carried it to the kennel and torn it up. A letter addressed in the following manner was received in Glasgow: "Mrs. ———, 3 miles from where the cattle is sold on the Duke of Buccleuch's ground."

Savings Bank.

The business of the Post Office Savings Bank continues to develop. The total amount due to depositors on the 1st of December last was 47,697,838*l.*, an increase of 2,924,065*l.* over the previous year. This is exclusive of the balance of Government Stock held by depositors at the close of the year, which amounted to 2,452,252*l.* The deposits were 6,474,484 in number and 15,034,694*l.* in amount, as compared with 6,458,707, amounting to 14,510,411*l.*, in 1884; and the withdrawals were 2,280,062 in number and 13,202,742*l.* in amount, as compared with 2,198,792, amounting to 12,530,563*l.*, in 1884. The amount of interest credited to depositors was 1,092,112*l.*, being an increase of 66,995*l.* over the previous year. During the year 350 *new Savings Bank Offices* were opened; 305 in England and Wales 29 in Scotland, and 16 in Ireland. The total number on the 31st of December was 8,106, as compared with 7,756 in 1884. The greatest number of *deposits* made in one day was 48,568, on the 31st of January, amounting to 99,913*l.*; but the largest amount deposited in one day was 124,843*l.*, which was deposited on the 1st of January. The greatest number of *withdrawals* in one day took place on the 22nd of December, when there were 20,835, amounting to 60,643*l.*, and the largest amount withdrawn in one day was on the 16th of December, when the amount was 66,981*l.* The *daily average of deposits* was 21,158, amounting to 49,133*l.*, and of withdrawals 7,451, amounting to 43,146*l.* The *average amount of each deposit* was 2*l.* 6*s.* 5*d.*, and of each withdrawal 5*l.* 15*s.* 10*d.* The number of *new accounts* opened during the year was 750,862, and 548,887 were closed, as compared with 774,268 accounts opened and 546,235 closed in 1884. The number of accounts remaining open at the close of 1885 was 3,535,650, as compared with 3,333,675 in 1884, an increase of 201,975. The accounts were apportioned thus:—

	Number.	Proportion to population.	Average balance due to each depositor.
			£ s. d.
England and Wales	3,272,701	1 to 8	13 10 8
Scotland ...	127,172	1 to 31	7 12 6
Ireland ...	135,777	1 to 36	17 19 2

Investments in Stock.

The investments made through the Post Office Savings Bank numbered 17,133, and the amount of stock purchased was

859,050*l*., being an increase of 2,933 investments and 155,855*l*. in amount over 1884. The number of depositors holding stock at the close of 1885 was 30,597, the amount of stock standing to their credit being 2,452,252*l*., an increase of 5,604 in number and of 535,927*l*. in amount on 1884. The average amount of the stock held by each person was 80*l*. 2*s*. 11*d*., as compared with 76*l*. 13*s*. 6*d*. at the close of 1884.

Government Annuities and Insurance.

The Government Annuities Act of 1882, under which the payments for Annuities and Life Insurances are made through the medium of the Post Office Savings Bank, came into operation on the 3rd of June, 1884, and the transaction of Government Life Insurance and Annuity business, which up to that period had been confined to about 2,000 selected Post Offices, was extended to the whole of the Post Office Savings Banks in the United Kingdom, numbering 7,500. During the year ended 31st December, 1885, the number of Immediate Annuities was 9,496, of Deferred Annuities 810, and of Life Insurances 5,155. The Life Insurances show an increase of 109 in number and 13,003*l*. in amount, the Deferred Annuities of only 10 in number, and of 716*l*. in amount.

Money Orders.

The Inland Money Orders issued in 1885 were 10,358,000 in number and 21,975,345*l*. in amount, as compared with 11,900,000 and 23,500,000*l*. the previous year. Against this falling off must be reckoned the very large increase in the number and amount of Postal Orders. There was a satisfactory increase in the Foreign Orders and in the Colonial Orders. The total number of Money Orders of all descriptions was 11,318,380 and the amount 24,832,421*l*., as compared with 12,864,736 and 26,230,676*l*. in 1884–85. A system came into operation on the 1st of January, 1885, under which foreign and colonial countries which have no direct Money Order system between each other can send and receive Orders through Great Britain. This system, which is simple and inexpensive, but very convenient, has been adopted by a large number of States.

Postal Orders.

The increased facilities afforded by the provisions of the Act affecting Postal Orders passed in 1883, and the reduction of the rates of commission, have contributed to the rapid development of that branch of business, and the total number of Orders paid during 1885 was 25,790,360, amounting in value to 10,788,946*l*., as compared with 18,831,164 Orders, amounting to 7,885,347*l*., in 1884–5. The denominations which continue to be most used by the public are 1*s*., 1*s*. 6*d*., 2*s*. 6*d*., 5*s*., 10*s*., and 20*s*., the numbers being as follows:—1,624,421 at 1*s*., 1,169,449 at 1*s*. 6*d*., 1,581,562 at 2*s*. 6*d*., 3,987,230 at 5*s*., 3,874,602 at 10*s*., and 4,943,267 at 20*s*.

Post Cards.

The following table shows the estimated number of post cards delivered in England and Wales and in the United Kingdom in each year from 1880 to the present time, and the increase per cent. per annum:—

Year.	England and Wales.	United Kingdom.	
	Number.	Number.	Increase per cent. per annum.
1880–81	103,473,100	122,884,000	7·4
1881–82	114,251,500	135,329,000	10·1
1882–83	121,243,300	144,016,000	6·4
1883–84	128,554,800	153,586,100	6·6
1884–85	134,071,500	160,304,500	4·4
1885–86	143,657,600	171,290,000	6·9

Book Packets and Circulars.

The following table shows the estimated number of book packets and circulars delivered in the United Kingdom in each year from 1880 to the present time, and the increase per cent. per annum:—

Year.	England and Wales.	United Kingdom.	
	Number.	Number.	Increase per cent. per annum.
1880–81	204,003,400	240,356,200	12·3
1881–82	228,999,400	271,038,700	12·8
1882–83	244,713,800	288,206,400	6·3
1883–84	249,347,900	294,594,500	2·2
1884–85	269,429,200	320,416,800	8·8
1885–86	288,507,100	342,207,400	6·8

Newspapers.

The following table shows the estimated number of newspapers delivered in 1878–9, 1881–2, 1884–5, and 1885–6:—

Year.	England and Wales.	United Kingdom.	Increase per cent. per annum
1878–79	100,424,300	130,895,300	1·8
1881–82	108,651,700	140,789,100	5·2
1884–85	110,682,900	143,674,500	0·7
1885–86	113,747,300	147,721,100	2·8

9. MISCELLANEOUS.

Railway Progress in England and Wales.

The following table shows the total length, capital, passengers conveyed, receipts, and working expenses of railways in England and Wales from 1872 to 1885:—

Years.	Length of lines open at the end of each year.	Total capital paid up (shares, loans, &c.) at the end of each year.	Total No. of passengers conveyed (excluding season-ticket holders).	Gross receipts.	Total of working expenses.	Net traffic receipts of passengers and goods.
	England and Wales.					
	Miles.	£	No.	£	£	£
1872 ..	11,136	473,639,591	372,450,223	45,039,155	22,065,151	22,989,668
1873 ..	11,369	490,018,994	401,465,086	48,857,278	25,813,377	23,043,901
1874 ..	11,622	508,726,428	423,083,941	50,210,136	27,534,723	22,675,413
1875 ..	11,789	527,090,667	451,032,641	51,726,416	28,220,495	23,505,921
1876 ..	11,989	544,831,959	477,146,165	52,476,319	28,466,366	24,009,953
1877 ..	12,098	557,878,925	490,351,707	53,057,499	28,635,033	24,422,466
1878 ..	12,229	579,387,630	503,982,893	53,142,875	28,099,438	25,043,437
1879 ..	12,547	593,155,665	503,652,787	52,479,379	27,112,853	25,366,526
1880 ..	12,656	602,242,578	540,669,175	55,795,186	28,577,111	27,218,075
1881 ..	12,807	616,437,449	561,224,291	57,240,132	29,685,896	27,554,236
1882 ..	13,052	635,186,791	586,689,830	59,092,802	30,927,457	28,165,345
1883 ..	13,202	650,945,834	612,401,758	60,521,638	31,819,248	28,702,390
1884 ..	13,340	665,055,379	621,131,188	60,099,011	31,732,486	28,366,525
1885 ..	13,612	677,180,162	622,169,944	59,320,905	31,474,849	27,846,056

Coal, Iron, and Copper in the United Kingdom.

The following table shows the quantity of coal, iron, and copper produced in the United Kingdom, 1871-1885:—

Year.	Coal.	Pig Iron.	Fine Copper.
	Tons.	Tons.	Tons.
1871	117,352,028	6,627,179	6,280
1872	123,497,316	6,741,929	5,703
1873	127,016,747	6,566,451	5,240
1874	125,067,916	5,991,408	4,927
1875	131,867,105	6,365,462	4,593
1876	133,344,826	6,555,997	4,694
1877	134,610,763	6,608,664	4,486
1878	132,654,887	6,381,051	3,952
1879	134,008,228	5,995,337	3,462
1880	146,818,622	7,749,233	3,662
1881	154,184,300	8,144,449	3,875
1882	156,499,977	8,586,680	3,464
1883	163,737,327	8,529,300	2,620
1884	160,757,779	7,811,727	3,350
1885	159,351,418	7,415,469	2,773

Postal Telegrams.

The number of Telegraph Messages despatched in the year 1885-6 in England and Wales was 18,118,538, and in the United Kingdom 39,235,813, an increase of 5,957,354 over the previous year. The number of messages despatched in London was 15,081,433 as compared with 12,930,376 in 1884-85. The increase in the number of local messages in London has amounted to no less than 74 per cent.

Land Tax and Inhabited House Duty.

The following table shows the net receipt in the years ended 31st March, 1886, and 1885:—

——	Mar. 31, 1886.	Mar. 31, 1885.	Increase +, or decrease −.
	£	£	£
Land-tax ..	1,023,196	1,044,858	− 21,662
Inhabited house duty	1,867,377	1,855,292	+ 12,085
	2,890,573	2,900,150	− 9,577

Income Tax.

The following table shows the net receipt in the years ended 31st March, 1886 and 1885:—

	1886.	1885.	Increase.
	£	£	£
Mar. 31..	15,247,312	11,922,770	3,324,542

CHRONICLE OF EVENTS AND OCCURRENCES.

Home and Foreign.

From November, 1885, *to October*, 1886.

1885.

Nov. 12. Bank rate raised from 2 per cent., to which it had been reduced on May 28, to 3 per cent.
24. Ratification by the British Government of the Anglo-Turkish Convention relating to Egypt handed to the Porte.
27. Visit of the Prince of Wales to Birmingham to open a new Hospital and Municipal Art Gallery.
—. Brilliant meteoric shower observed in all parts of the country.
—. Settlement of the Caroline Islands dispute between Spain and Germany.
28. Mandalay occupied by General Prendergast without opposition.
29. Funeral of King Alfonso of Spain.
30. Fighting in the Soudan renewed at Kosheh.

Dec. 2. Cession of Gwalior Fort to the Maharajah Scindia.
5. Arrival of King Theebaw, under arrest, at Rangoon.
6. Outbreak of cholera at Venice.
7. H.E. Musurus Pasha delivered his letters of recall to the Queen. H.E. Rustem Pasha, Ambassador Extraordinary from the Sultan of Turkey, delivered his credentials.
8. Heavy snowstorm in Caithness-shire.
—. Abeyance of the Barony of Grey de Ruthyn terminated in favour of Lady Bertha Clifton.
—. Distribution of medals by the Queen to non-commissioned officers and troopers of the 2nd Life Guards at Windsor for distinguished gallantry during the Soudan campaign.
9. Departure of Mr. Bernard to Mandalay to assume the government.
11. Departure of General Stephenson to the front from Cairo.
12. Memorial on Church Reform, signed by the resident members of the Senate of the University of Cambridge, presented to the Archbishops.
13. Great fire at Plymouth, 12 persons burnt to death.
14. Arrival of King Theebaw at Madras.
15. Collision on the Georgia and Pacific Railway, America, causing the death of 12 persons and serious injury to many others.
16. Serious riots among quarrymen on strike at Llandulas, necessitating the dispatch of troops from Chester.
17. Military commission, to settle the basis of an armistice between Servia and Bulgaria, accepted by Bulgaria.
—. Freedom and livery of the Turners' Company presented to Sir John A. Macdonald, G.C.B., Premier of Canada.
—. Bank rate raised from 3 (November 12) to 4 per cent.
18. Agreement between Germany and Spain on the Caroline Islands dispute formally settled.
—. Results of the last elections for the new Parliament declared.
21. Celebration at Berlin of Leopold von Ranke's 90th birthday.
—. Armistice between Servia and Bulgaria signed.
22. Peace between France and Madagascar announced.
23. Colliery explosion at Mardy, Rhondda Valley, destroying 79 lives.

Dec. 28. Re-election of M. Grèvy as President of the French Republic.
30. Resignation of the French Ministry.
—. Battle at Kosheh. Victory of General Stephenson over the Arabs.

1886.

Jan. 1. Proclamation announcing the annexation of Upper Burmah.
—. Reported capture and murder of Bishop Hannington in Central Africa, by the King of Uganda.
2. Mutiny of two Indian coolies on board an American ship the *Frank N. Thayer*, 700 miles S.E. of St. Helena, who killed six men, and after overawing the remaining 14 men of the crew, set fire to the ship, when some of the crew broke out of their barricade, and forced the mutineers to jump overboard.
3. Celebration of the twenty-fifth anniversary of the Emperor of Germany's accession to the throne of Prussia.
4. Earthquake in Devonshire between Dartmouth and Kingsbridge.
6. Heavy snowstorm throughout the country.
7. New French Cabinet formed by M. de Freycinet.
—. Collision on the Great Eastern Railway at Manor Park Station, causing injury to 10 people.
9. Great landslip on the L. and N. W. Railway near Chester, causing the wreck of a goods train, and blocking the down line for several days.
—. First mineral train passed through the Severn tunnel.
10. Mormon Suppression Bill passed by the Senate of the United States, by 38 to 7 votes.
11. Suspension of payment by the Jersey Banking Company.
12. Meeting of the Eleventh Parliament of the Queen's reign, in order to elect a Speaker.
—. Collective Note of the Powers delivered at Sofia, Belgrade, and Athens, asking for the partial disarmament of Bulgaria, Servia, and Greece.
13. Mr. Charles Bradlaugh, M.P. for Northampton, took the oath and his seat without interruption.
—. Violent storm in the Midland counties, unroofing many houses.
—. The Earl of Carnarvon's resignation of the Lord Lieutenancy of Ireland announced.
14. New street between Piccadilly Circus and Oxford Street opened for traffic.
15. John Magee sentenced to seven years' penal servitude for threatening H.R.H. the Prince of Wales.
18. Refusal of Servia and Greece to disarm announced.
—. Discovery at Rome of an ancient tomb, apparently that of Sergius Sulpicius Galba, Consul B.C. 144.
19. Five deputations to the Prime Minister urging the Government to maintain the integrity of the Empire in the Irish crisis.
20. The Mersey Tunnel opened by H.R.H. the Prince of Wales.
—. A. B. Rudge, John Martin, and James Baker, sentenced to death for the murder of a policeman in connection with the Netherby burglary.
21. Parliament formally opened by Her Majesty.
—. Bank rate lowered from 4 per cent., to which it had been raised on Dec. 17, 1885, to 3 per cent.
23. The British Government announced its intention of blockading the Greek ports, if the Greek Government persisted in its refusal to disarm.

Jan. 24. The Australasian Federal Council formally opened at Hobart Town.

25. Mr. Barclay's amendment to the Address, representing the necessity for securing, without delay, to the cultivators of the soil such conditions of tenure as will "enable them to meet the trying circumstances in which they are placed," defeated by 211 to 183.

26. Defeat of the Marquis of Salisbury's Ministry on Mr. Jesse Collings's amendment to the Address "regretting that no measures had been announced for affording facilities to agricultural labourers to obtain allotments and small holdings," by 329 to 250.

—. The Victoria Station of the Great Eastern Railway at Norwich partially destroyed by an explosion of gas.

27. Serious riot of men on strike at the ironworks at Decazeville, France, and murder of the manager.

28. Adjournment of both Houses of Parliament till February 1.

29. Great meeting of the Loyal Irish Union at Chester under the presidency of the Duke of Westminster.

30. Mr. Gladstone summoned to Osborne in order to form a Ministry.

Feb. 1. Resignation of the Conservative Ministry formally announced in Parliament.

—. Opening of the Technical School in Sheffield.

—. Postal Union between England and the Australian Colonies announced.

2. Agreement between Turkey and Prince Alexander of Bulgaria ratified.

—. Consecration of Lord Alwyne Compton as Bishop of Ely and of the Rev. E. Bickersteth as Bishop of Japan.

5. Mr. Gladstone's Ministry formed.

8. Great meeting of unemployed workmen at Trafalgar Square; followed by serious rioting of Socialists, who wrecked many shops in the leading thoroughfares of the west of London.

10. Serious railway accident at the Finsbury Park Station, causing injury to 30 people.

—. Serious riot at Leicester, many factories being attacked.

12. Arrival of the Viceroy of India at Mandalay.

15. Riots at Birmingham and Yarmouth.

16. Fall of a large portion of the Shipping Exhibition building at Liverpool, causing injury to 18 workmen.

17. Arrival of M. Lesseps at Colon to survey the Panama Canal.

—. Mutiny on board the *Arethusa* training ship in the Thames.

—. Commencement of the prosecution of Messrs. Burns, Champion, Hyndman, and Williams, at Bow Street, for seditiously inciting the crowd to riot on the 8th February.

18. Bank rate reduced to 2 per cent. from 3 per cent., to which it was lowered January 21.

—. Reassembling of Parliament.

—. Mr. Macfarlane's amendment to the Address, regretting the absence of any assurance that legislation would be undertaken to prevent the evictions of the crofters, negatived by 234 to 104.

19. Waterloo Cup won by "Miss Glendyne."

22. Report of the Committee of Inquiry into the conduct of the police during the riots on the 8th instant, presented to the House of Commons, and the resignation of Colonel Sir E. Y. Henderson, Chief Commissioner of Police, announced.

—. Visit of Lord Randolph Churchill, M.P., to Ulster.

Feb. 22. Resolution that the expenses of the campaign in Burmah be defrayed from the revenues of India adopted by 297 to 82.
24. Openings of new buildings for the Cambridge University Union Society by H.R.H. Prince Albert Victor.
26. Special performance of Gounod's oratorio "Mors et Vita," before H.M. the Queen at the Albert Hall.
—. Strike of 2,000 of Nettlefold's workpeople, and rioting in Birmingham.
27. Foundation-stone of a chapel to be erected to the memory of the late Duke of Albany at Cannes laid by H.R H. the Prince of Wales.

Mar. 3. Treaty of Peace between Servia and Bulgaria signed at Bucharest.
4. Petition against the return of Baron Ferdinand de Rothschild for Mid-Bucks dismissed with costs.
5. Mr. Labouchere's motion in the House of Commons "that it is inconsistent with the principles of representative government that any member of either House of the Legislature should derive his title to legislate by virtue of hereditary descent," negatived by 202 to 166.
8. A British garrison of 300 troops at Yemethen, in Burmah, surrounded by 9,000 rebels.
—. Public dinner and presentation to the Earl of Iddesleigh.
—. Explosion at Cardiff on a tug-boat killing all on board, seven in number.
9. Mr. Dillwyn's motion to disestablish the Church of England in Wales defeated by 241 votes to 229.
10. Railway collision in the Riviera between Roquebrunne and Monte Carlo; four carriages being dashed into the sea; 3 persons killed and 20 badly injured.
—. A reduction of the Vote for the Royal Parks by 50,000*l.* carried in the House of Commons against the Government by 131 to 114.
12. Conclusion of the action of Mr. John Bryce against Mr. G. W. Rusden, author of a "History of New Zealand," for libel published in his history. Verdict for plaintiff with 5,000*l.* damages.
13. Foundering of the Union Line steamer *Corinth* after collision with H.M.S. *Firebrand* near Amoy, and of the Cunard steamer *Oregon* near Fire Island: all hands saved.
15. Richard Belt, sculptor, sentenced to 12 months' hard labour for obtaining money under false pretences from Sir William N. Abdy.
—. Sir Charles Warren, G.C.M.G., appointed Chief Commissioner of the Metropolitan Police.
16. William Turnour, "Viscount Hinton," sentenced to 12 months' hard labour for fraud and conspiracy.
—. H.R.H. the Duchess of Connaught delivered of a daughter.
—. Suspension of negotiations between Turkey and Bulgaria.
17. Second reading of the Church of Scotland Bill negatived by 202 to 177.
18. Two collisions on the new Underground Railway at Glasgow, causing severe injuries to several persons.
—. Socialist riots at Liége causing much destruction to property.
19. Lord Thurlow's motion for the Sunday Opening of Museums passed in the House of Lords by 76 to 62.
22. Telegram from General Prendergast announcing the dispersal of the insurgents collected at Yemethen.
—. Confirmation of the existence of petroleum wells near Suez.

Mar. 22. Mr. Howard Vincent's motion for an immediate increase of the Capitation Grant to the Volunteer Force defeated by 187 to 166.
23. Mr. Thorold Rogers' resolution, objecting to the first incidence of local taxation falling on the occupier and not the owner, affirmed by 216 to 176.
24. H.M. the Queen laid the foundation-stone of a new Examination Hall for the Royal Colleges of Physicians and Surgeons on the Embankment.
—. Agreement of the Porte to concede the demand of Prince Alexander for a life appointment as Prince of Roumelia.
26. Serious strikes and riots in Belgium; Charleroi in a state of siege.
—. The Liverpool Grand National Steeplechase won by "Old Joe."
27. Mr. Chamberlain and Mr. Trevelyan resigned their seats in Mr. Gladstone's Cabinet.
29. The chess match between Dr. Zukertort and Mr. Steinitz for the championship of the world won by Mr. Steinitz.
30. Dr. Cameron's motion in the House of Commons, for the Disestablishment and Disendowment of the Church of Scotland, defeated by 237 to 125.

April 1. The election of Messrs. H. West, Q.C., and J. Collings, for Ipswich, declared void.
2. Great meeting in the Guildhall to protest against the establishment of a separate Parliament in Dublin.
3. The University boat race won by Cambridge by half a length.
5. Meeting of the Conference on the Turco-Bulgarian Agreement at Constantinople, and ratification of the appointment of Prince Alexander as Governor of Eastern Roumelia for five years.
6. The University racquets won by Cambridge by four games to love.
7. The single-handed University racquet match won by Cambridge (H. E. Crawley) by three games to two.
—. The City and Suburban won by "Royal Hampton."
8. Mr. Gladstone made his statement in the House of Commons on the government of Ireland.
9. Resignation of the Earl of Morley and Mr. Heneage from Mr. Gladstone's Ministry.
10. Acquittal of the Socialists, Messrs. Hyndman, Champion, Williams, and Burns, on the charge of inciting to sedition on the occasion of the riots in London on February 8.
11. Enthusiastic meeting at Her Majesty's Opera House to protest against Mr. Gladstone's Home Rule Scheme for Ireland: Earl Cowper in the chair, supported by the Marquis of Salisbury, Marquis of Hartington, and other leading Liberals and Conservatives.
—. Return of two Conservatives for Ipswich.
15. Attempt by the rebels in Burmah to burn down Mandalay; 600 dwellings destroyed.
16. Reported outbreak of cholera in Brindisi.
—. Mr. Gladstone moved for leave to bring in a Bill for the Sale and Purchase of Land in Ireland.
17. Acquittal of Mrs. Bartlett on the charge of the wilful murder of her husband by administering chloroform.
—. Opening of the Tilbury Docks.
18. Assassination of the Bishop of Madrid by a priest.

April 19. The town of Stry in Gallicia, containing about 15,000 inhabitants, destroyed by fire.
26. Massacre of an Italian scientific expedition under Count Porro at Arbed in the province of Harrara confirmed.
—. Ultimatum of all the Powers, except France, calling upon Greece to disarm within eight days, presented at Athens.
—. The Two Thousand Guineas won by "Ormonde."
30. The One Thousand Guineas won by "Miss Jummy."
May 2. Reinforcements sent to Burmah, owing to the continuance of disorder there.
4. Opening of the Colonial and Indian Exhibition at South Kensington by Her Majesty in state.
5. Serious rioting of Socialists in Chicago; several policemen killed and over one hundred rioters shot.
6. A second note presented by the Powers calling upon Greece to begin to disarm within seven hours.
—. Bank rate raised to 3 per cent. from 2 per cent., at which it was fixed on February 18.
—. Opening of the International Exhibition at Edinburgh by Prince Albert Victor.
—. The Grand Theatre at Derby burnt down, one of the actors, Mr. J. W. Adams, being suffocated.
7. Departure of the Representatives of England, Germany, Italy, and Turkey, from Athens.
—. The Bill for the demolition of the Charterhouse withdrawn.
8. Blockade of Greek ports against vessels carrying the flag of Greece begun by the five Powers. Resignation of the Greek Ministry.
—. Philip Gosset, Treasurer of the Jersey States and late Managing Director of the Jersey Banking Company sentenced to five years' penal servitude for appropriating nearly 40,000*l.* public money.
10. Anglo-Spanish Commercial Convention agreed to; to take effect from July 1.
11. Opening of the Liverpool International Exhibition by Her Majesty.
—. Sale of Intoxicating Liquors on Sunday (Durham) Bill read a second time in the House of Lords.
12. Severe snowstorms in the south of Scotland and north of England. Terrible hurricanes in America and Madrid, causing great loss of life.
—. Arrest in New York of Herr Most, the notorious anarchist.
13. Departure of Her Majesty from Liverpool.
14. Mr. Jennings's motion to place import duties on foreign imports of manufactured goods negatived without a division.
16. The British evacuation of Suakin completed.
17. Birth of an heir to the Spanish Throne.
20. Arms Bill (Ireland) read a second time in the House of Commons by 300 to 89.
21. Outbreak of hostilities between Greece and Turkey.
22. Marriage of the Duke of Braganza, Crown Prince of Portugal, with the Princess Marie Amélie of Orleans.
24. The "Marriage with a Deceased Wife's Sister Bill" thrown out of the House of Lords by 149 to 127.
—. Decrees of demobilization of part of the Greek forces published.
26. The Derby won by the Duke of Westminster's "Ormonde," ridden by F. Archer.

May 28. The Oaks won by the Duke of Hamilton's "Miss Jummy," ridden by F. Watts.
29. The new bridge at Putney opened by T.R.H. the Prince and Princess of Wales.
—. Great fire in Rixdorf, a suburb of Berlin.
30. Total wreck of the Australian Steam Navigation Company's Steamer *Lyeemoon* between Melbourne and Sydney, and loss of over 70 lives, 10 persons only being saved.
31. Discovery in Aberdeen of a large bronze urn containing English coins of the date of Edward I, and of early French and Scotch coins.

June 1 The French flag hoisted on the New Hebrides.
4. Serious rioting in Belfast between some Roman Catholic navvies and Protestant shipwrights.
7. Blockade of the Greek ports raised.
8. Mr. Gladstone's Irish Separation Bill rejected on Lord Hartington's amendment to the second reading by a majority of 341 to 311, the largest division ever recorded at Westminster.
9 and 10. Renewal of the riot in Belfast, several people being shot dead.
10. Ministerial announcement of an immediate dissolution of Parliament.
—. Bank rate lowered from 3 per cent., at which it was fixed on May 6th, to 2½ per cent.
11. Bill passed in the French Chamber by 310 to 233 for the expulsion of the French Princes, or the so-called "immediate pretenders" to the Crown of France.
—. Great volcanic eruption in the Tarawera district of New Zealand.
12. Outbreak of cholera at Trieste.
13. Suicide of the King of Bavaria in the lake of Starnberg.
14. Vancouver, British Columbia, burnt to the ground.
21. Foundation stone of the new Tower Bridge laid by H.R.H. the Prince of Wales.
22. Bill for the expulsion of the French Princes passed by the Senate by 141 to 107.
24. Arrival of the Comte and Comtesse de Paris at Dover.
26. Dissolution of Parliament.
28. H.R.H. the Prince of Wales laid the first stone of the Queen's Hall of the People's Palace in East London.
29. First through train on the Canadian Pacific Railway left Montreal for Vancouver.

July 6. Serious riots in Dublin and Londonderry after the declaration of the polls.
7. A wing of the Brussels University destroyed by fire.
—. Russia declared her intention to abolish the free port of Batoum.
—. Oxford and Cambridge cricket match won by Oxford by 133 runs.
—. First despatch of parcels by "parcel post" to Australia.
13. The Duc D'Aumale expelled from France.
—. Serious rioting in Belfast.
—. Resignation of Mr. Gladstone's Ministry.
22. Naval review at Portsmouth.
23. Eclipse Stakes at Sandown won by Mr. Barclay's "Bendigo."
26. Marquis of Salisbury appointed First Lord of the Treasury.
31. Completion of the Marquis of Salisbury's Cabinet.

Aug. 1. Annexation of the Kermadec Islands in the S. Pacific by Her Majesty's Government.

Aug. 1. Celebration of the fifth centenary of Heidelberg University.
5. Opening of the Twelfth Parliament by the Queen, in order to elect a Speaker.
7. Serious rioting renewed in Belfast, necessitating the despatch of troops.
9. Opening of the Grosvenor Museum at Chester by the Duke of Westminster.
10. Conclusion of the sale of the Blenheim collection.
13. Disastrous colliery explosion in the Leigh District of Lancashire, causing 38 deaths.
19. Mr. Bradlaugh's amendment to the sessional orders prohibiting peers from interfering in Parliamentary elections defeated by 294 to 126.
21. Deposition of Prince Alexander of Bulgaria.
26. Bank-rate raised from 2½ per cent. to 3½ per cent.
—. Mr. E. R. Russell's motion for the adjournment of the House in order to discuss Sir Redvers Buller's appointment in Ireland negatived by 241 to 146.
28. Mr. Parnell's amendment to the Address defeated by 304 to 181.
29 to 31. Great earthquake in the Ionian Islands and the United States.

Sept. 1. The Severn Tunnel opened for traffic.
4. Abdication of Prince Alexander of Bulgaria.
7. Reported outbreak of cholera in Mandalay.
—. Departure of Prince Alexander of Bulgaria from Sofia.
13. The Channel crossed, from Dover to Calais, by the *Volta*, propelled by electricity.
15. The St. Leger won by "Ormonde."
18. Sculling race on the Thames for the championship of the world won by W. Beach, of Sydney, defeating J. Gaudaur, of St. Louis, U.S.A.
19. Attempted military revolt in Madrid.
21. Mr. Parnell's Tenants' Relief (Ireland) Bill thrown out of the House of Commons by 297 to 202.
27. Meeting at the Mansion House to consider the formation of a Colonial and Indian Institute.
28. Relief of Major Meacham's force, which had been surrounded by Boshway's force, at Thabyabin, in Burma.
29. Sir Reginald Hanson elected Lord Mayor of London.

Oct. 1. Disastrous floods in the Godavery district of Madras.
—. Bequest of Chantilly to the French nation by the Comte de Paris.
2. Fatal colliery explosion at the Silkstone pit, Altofts, near Wakefield.
4. Irish deputations to Mr. Gladstone at Hawarden.
5. Opening of the Church Congress at Wakefield.
7. Capture of Tamai, in the Soudan, by the "friendlies," and opening of the road to Tokar.
12. The Cæsarewitch won by Mr. R. C. Vyner's "Stone Clink."
15. Great gale and floods throughout the country.
—. Arrival of the Afghan Frontier Commission at Cabul, on their return to India.
17. Severe fighting in Burma; a small British column repulsed while attacking Nyngyan.
21. The Bank-rate raised from 3½ per cent., to which it had been raised on August 25th, to 4 per cent.
26. The Cambridgeshire won by Mr. Gilbert's "Sailor Prince."

OBITUARY

OF DISTINGUISHED AND NOTABLE PERSONS WHO DIED BETWEEN NOVEMBER, 1885, AND OCTOBER, 1886.

1885.		Age
Nov.	26. SERRANO, Y DOMINIQUEZ, Francisco, Duke de la Torre, Field Marshal of Spain, one of the revolutionary leaders of 1868	76
	27. WEBB, Rev. Benjamin, F.S.A., Prebendary of St. Paul's, and Vicar of St. Andrew's, Wells Street	—
Dec.	8. VANDERBILT, William H., American financier	64
	11. TOLLER, Rev. Thomas, of Kettering	90
	—. ULLESBERGER, Xavier, palæontologist	79
	12. BEAUME, Joseph, historical painter	88
	14. CHRISTIE, Very Rev. William, Dean of Moray and Banff	69
	—. LEFROY, Very Rev. Jeffry, Dean of Dromore	76
	15. HOWSON, Very Rev. John S., D.D., Dean of Chester	70
	—. FERDINAND, King, Duke of Saxe-Coburg; father of the King of Portugal	69
	—. PHAYRE, Lieut.-General Sir Arthur P., G.C.M.G., formerly Chief Commissioner at British Burmah	73
	—. TOOMBS, Robert, ex-Confederate	75
	—. FAHEY, James, one of the founders of the Royal Institute of Painters in Water-Colours	82
	16. MAFFEI, Andrea, author	85
	19. GUILFORD, the Earl of	34
	20. EVANS, Capt. Sir Frederick J. O., R.N., K.C.B., F.R.S., Hydrographer of the Admiralty	71
	—. MACLEHOSE, James, publisher, of Glasgow	75
	23. CAMPBELL, Major Dugald, J.P., City Marshal since 1873	57
	—. HARRISON, Sir George, M.P. for the South Division of Edinburgh, Lord Provost of Edinburgh, 1882-1885	74
	24. BORTHWICK, Lord	72
	—. BLOMFIELD, Rev. J. B., Canon and Vice-Dean of Chester	86
	25. TUCKER, Charles, F.S.A.	86
	26. ARMAGH, Archbishop of, Right Hon. and Most Rev. Marcus G. Beresford	84
	27. BIRCH, Samuel, D.C.L., F.S.A., Keeper of the Egyptian and Oriental Antiquities in the British Museum	72
	28. MAIN, Rev. Thomas J., author	67
	29. HEMANS, Colonel George Willoughby, son of Felicia Hemans	72
	30. IMBRIANI, Vittorio, Italian author and critic	40
1886.		
Jan.	3. BROUGHAM and VAUX, Lord	91
	—. AMOS, Professor Sheldon	50
	5. LIPPINCOTT, Joshua B., American publisher	70
	7. MORRIS, John, F.G.S., Professor of Geology in University College, from 1855 to 1877	75
	9. FERGUSSON, James, F.R.S., distinguished architect and historian	78
	10. HUMPHRY, Rev. William G., Prebendary of St. Paul's, one of the revisers of the English version of the New Testament, and author of numerous works	71
	11. M'KANE, Professor John, Conservative M.P. for Mid-Armagh	—

			Age
Jan.	13.	YULE, Sir George Udny, C.B., Provisional Member of the Governor-General's Council in India	72
	15.	MAAS, Joseph, eminent tenor singer	38
	15.	GRANT, General Sir John T., K.C.B.	74
	17.	BAUDRY, M. Paul, eminent French artist	58
	18.	MAYER, Joseph, F.S.A., collector of antiquities	83
	19.	CZAJKOWSKI, Michael, Polish novelist	78
	21.	NORCOTT, General Sir W. S. R., K.C.B., Colonel Commandant of the Rifle Brigade	82
	23.	STRATHALLAN, William Henry, Viscount, one of the representative Peers for Scotland	76
	26.	FLOWERS, Frederick, police magistrate at Bow Street	—
	27.	CRADOCK, Rev. Edward Hartopp, D.D., Principal of Brasenose, Oxford	71
	27.	STRADBROKE, John E. Cornwallis, Earl of, the oldest member of the House of Lords	92
Feb.	2.	SALTOUN, Alexander Fraser, Lord, a representative Peer of Scotland	66
	5.	MADDEN, Richard Robert, F.R.C.S., formerly Colonial Secretary of Western Australia, author and philanthropist	88
	6.	ASPINALL, John Bridge, L.C., Recorder of Liverpool	68
	—.	PEPYS, Philip Henry, late Registrar of the Court of Bankruptcy	62
	7.	TORLONIA, Prince Alexander, originator of the scheme for the draining of the Lake Fucino	86
	9.	HANCOCK, Major-General Winfield Scott, democratic candidate in 1880 for the Presidency of the United States	62
	10.	BRADSHAW, Henry, University Librarian at Cambridge, eminent authority on Chaucer	54
	—.	THOMAS, Edward, C.I.E., F.R.S., Treasurer of the Royal Asiatic Society, distinguished numismatist and author	73
	12.	CALDECOTT, Randolph, humorous artist	40
	13.	TULLOCH, Very Rev. John, D.D., LL.D., Vice-Chancellor of St. Andrew's University, Dean of the Order of the Thistle	63
	15.	CARDWELL, Viscount, originator of "Short Service" enlistment in the British Army	72
	18.	MELVILLE, Robert Dundas, Viscount	83
	20.	BENTINCK, George William Pierrepont, formerly Conservative M.P. for W. Norfolk	83
	25.	RICKETTS, Sir Henry, K.C.S.I., formerly a Member of the Indian Council	84
	27.	HOYLE, William, advocate and leader of the temperance movement	—
	27.	ROBERTSON, John Elliott Pasley, D.C.L., for 20 years Chancellor of the Diocese of Rochester	82
	28.	PEACH, Charles William, Scotch naturalist and palæontologist	86
	—.	WILSON, Lieut.-General Thomas Fourness, C.B., C.I.E., late Military Member of the Council of the Viceroy of India	66
Mar.	1.	SHADWELL, Admiral Sir Charles Frederick Alexander, K.C.B., F.R.S.	72
	2.	FORSTER, John Cooper, formerly President of the Royal College of Surgeons	63
	8.	WHEELHOUSE, Sir William St. James, Q.C., Conservative M.P. for Leeds from 1868 to 1880	65

		Age
Mar.	8. FELLOWES, Vice-Admiral Charles, C.B., senior officer in command of the Channel Squadron at Gibraltar . .	63
	—. BROOKS, John, Conservative M.P. for the Altrincham Division of Cheshire	30
	14. POOLE, James, artist	82
	16. CHICHESTER, Henry Thomas Pelham, Earl of . . .	82
	18. TYRWHITT, Lieut.-General Charles, C.B., Ranger of Hyde Park, and Private Secretary to H.R.H. the Duke of Cambridge	69
	—. JACKSON, Rev. Thomas, Prebendary of St. Paul's, and author of various works	74
	20. COBBOLD, Thomas Spencer, M.D., F.R.S., author of various medical works	57
	—. TALMAGE, Charles George, F.R.A.S., astronomer . .	—
	25. CHAMBORD, Marie Thérèse, Comtesse de	69
	—. DANBY, Thomas, landscape painter in water-colours . .	—
	28. TRENCH, The Most Rev. Richard Chevenix, D.D., Dean of Westminster from 1856 to 1863, and Archbishop of Dublin from 1863 to 1884, when he resigned . . .	79
	—. TAYLOR, Sir Henry, K.C.M.G., poet, dramatist, and essayist, served in the Colonial Office from 1824 to 1872.	86
April	2. SOLLY, Edward, F.R.S., F.S.A., Professor of Chemistry, and author of various works on chemistry . . .	67
	5. FORSTER, Right Hon. William Edward, M.P. for Bradford since 1861; Vice-President of the Council on Education from 1868 to 1874, and Chief Secretary for Ireland from 1880 to May, 1882, when he resigned	68
	6. RUSSELL, Rev. Lord Wriothesley, Canon of Windsor since 1840	82
	10. WELSH, John, formerly United States Minister in London .	81
	—. COTTERILL, Right Rev. Henry, D.D., Bishop of the Diocese of Edinburgh	74
	18. OTTIER, Edmund, author	59
	19. LOW, Sampson, founder of the publishing firm of Sampson Low, Marston, Searle, and Rivington	89
	22. VANE, Sir Henry Morgan, for 33 years Secretary of the Charity Commission	78
	26. M'LAREN, Duncan, for 16 years (from 1865 to 1881) M.P. for Edinburgh	86
	—. ISABEY, Eugene, painter of sea pieces and landscapes . .	82
	27. EDWARDS, Thomas, naturalist, of Banff	82
May	1. LEAKE, Sir Luke Samuel, Speaker of the Legislative Council of Western Australia	58
	2. REDESDALE, John Thomas Freeman Mitford, Earl of, for 35 years Chairman of Committees in the House of Lords	81
	—. SPRUNT, James, for over 25 years editor of the *Perthshire Advertiser*, having started life as a handloom weaver .	75
	6. AULDJO, John, for many years H.B.M's. Consul at Geneva .	81
	13. PEARSON, Sir John, Q.C., one of the Judges of the Chancery Division of the High Court of Justice . . .	66
	17. FARNBOROUGH, Thomas Erskine May, Lord, P.C., Clerk of the House of Commons for 15 years, author of a "Constitutional History of England from the Accession of George III, 1760—1860," and other works . . .	71
	20. BARDESLEY, Rev. Canon James, Hon. Canon of Manchester, and author of various works	88
	23. MICHEL, Field-Marshal Sir John, P.C., G.C.B., Colonel of the Royal Irish Rifles	82

			Age.
May	23.	RANKE, Leopold Von, German historian	90
	23.	FRÈRE, Pierre, Edouard, French painter of *genre* subjects	67
	26.	HERBINGER, Colonel, whose retreat from Langson, in Tonquin, caused the overthrow of the Ferry Cabinet	45
	—.	LANDSBOROUGH. William, Australian explorer; discovered the head of the Thompson River in 1866	—
	31.	SEELEY, Robert Benson, publisher	89
June	1.	COOPER, William White, F.R.C.S., eminent oculist	69
	2.	STEPHENSON, James, line and mezzotint engraver	78
	13.	LOUIS II, King of Bavaria; committed suicide	41
	16.	STUART, Sir Alexander, K.C.M G., Prime Minister of New South Wales, 1883 to 1885	62
	18.	HOLKAR, Tuckaji Rao, The Maharajah of Indore	53
	—.	JEWETT, Llewellyn, F.S.A., archæologist and author.	70
	19.	TREVELYAN, Sir Charles Edward, Bart., K.C.B., late Governor of Madras	80
	—.	HOBART, the Hon. Augustus Charles; known as Hobart Pasha, Marshal of the Turkish Empire and Admiral of Turkish Fleet	65
	20.	SCINDIA, Bhajeerut Rao, the Maharajah of Gwalior	51
	—.	MORAN, Hon. Benjamin, formerly Secretary of Legation of the United States at the Court of St. James's	66
	22.	HOME, Douglas, the medium	52
	30.	FRY, Mr. Deputy, Deputy Alderman of the City	74
July	1.	OGILVIE-FORBES. George, M.D., late Professor of the Institute of Medicine in Aberdeen University, and author	66
	3.	WILSON, Effingham William, publisher	60
	–.	CHOWN, Rev. T. P., Ex-President of the Baptist Union of England and Wales	65
	8.	GUIBERT, Cardinal, Archbishop of Paris	84
	9.	GRAHAM, General Henry Hope, C.B.	79
	11.	BOURREE, Nicolas Prosper, French diplomatist	75
	12.	ROMILLY, Hon. Edward, one of the Masters of the Supreme Court of Judicature	48
	13.	WILSON, Rev. Daniel, Prebendary of St. Paul's, and for 54 years vicar of Islington	80
	17.	STEPHENSON, David, civil engineer and author	70
	20.	COWIE, Hugh, Q.C., Chancellor of the Diocese of Durham and Recorder of Maldon and Saffron Walden	57
	21.	ANSTRUTHER, Sir Robert, Bart., Lord Lieutenant of Fifeshire	52
	28.	ANDERSON, Sir John, LL.D.; for some years Superintendent of the Royal Gun Factories at Woolwich	72
	—.	REILLY, Major-General William Edward Moyses, C.B., Inspector-General of Artillery	59
	31.	LISZT, the Abbé Franz.	75
Aug.	—.	GOOLD, Most Rev. James Alipius, R.C. Archbishop of Melbourne	74
	3.	GORDON, Archibald, M.D., C.B., Inspector-General of Hospitals, and Hon. Surgeon to the Queen	75
	4.	TILDEN, Samuel Jones, Democratic Candidate for the Presidency of the United States in 1876	73
	9.	FERGUSON, Sir Samuel. Q.C., LL.D., Deputy-Keeper of the Public Records in Ireland	76
	–.	BIRCH, Ven. Edward, Archdeacon and Vicar of Blackburn.	78
	10.	BUSK, George, F.R.S., Treasurer of the Royal Institution, eminent surgeon and naturalist	78

			Age.
Aug.	15.	BENNETT, Rev. William James Earley, vicar of Frome-Selwood, and author of various theological works	82
	16.	HOLLINS, Peter, sculptor	87
	20.	SMALL, John, LL.D., Librarian to the University of Edinburgh, and author	—
	26.	EDEN, Right Rev. R., D.D., Primus of Scotland	82
	30.	WAKLEY, James G., editor of the *Lancet*	61
Sept.	4.	MORLEY, Samuel, philanthropist	76
	12.	KELK, Sir John, Bart.	71
	16.	DECAZES, Louis Charles Elie Amanieu, Duc	67
	17.	DALKEITH, Earl of, killed out deerstalking	26
	20.	HATTON, John Liptrot, musical composer	77
	23.	WEBSTER, Thomas, R.A.	87
	24.	RANKEN, Very Rev. Arthur, Dean of Aberdeen and the Orkneys	80
Oct.	1.	THOMPSON, Rev. William Hepworth, D.D., F.S.A., for 20 years Master of Trinity College, Cambridge	76
	2.	GIBSON, James Young; translator of Cervantes	60
	7.	BARROW, Lt.-General Charles Malcolm, C.B.	67
	–.	BARNES, Rev. William, B.D.; author of "Poems of Rural Life, in the Dorset Dialect;" and of other works	86
	13.	GIRAUD, Richard Herve; one of the founders of the Huguenot Society of London	86
	16.	ROTHSCHILD, Baron Meyer Carl	66
	18.	AILESBURY, Ernest Augustin Charles Brudenell-Bruce, Marquis of	75
	20.	MACPHERSON, Major-General Sir Herbert Taylor, V.C., K.C.B., K.C.S.I., while in command of the British forces in Burma	59
	24.	BEUST, Frederick Ferdinand, Count Von; Chancellor of the Austro-Hungarian Empire from 1867 to 1871, and subsequently for some years Austro-Hungarian Ambassador in London	77

INDEX

TO

THE 'COMPANION TO THE BRITISH ALMANAC.'

	PAGE
Accidents, Statistics of	264
Acreage under corn	260
Acts of Parliament, Abstracts of	225–246
,, Table of	219–224
Agriculture, Statistics of	260
Annuities, Government	273
,, terminable	251
Architecture. By Professor Hayter Lewis	128
Army, Strength of	262
Art of the Year. By Cosmo Monkhouse	160
Assets of the Bank of England	254
Astronomical Photography. By E. W. Maunder	35
Bank of England, Assets of	254
Bank Rate, Average	253
Births, &c., Statistics of	262
Board Schools, Statistics of	265
Burma. By Lt.-Col. D. McNeill	49
Children, Census of	262
Chronicle of Events	275
Coal, Production of	274
Coasting Trade	265
Coffee ,,	260
Coinage at the Mint	252
Colonial and Indian Exhibition. By A. J. R. Trendell, C.M.G.	108
Commerce, Statistics of	255
Consols, Medium Price of	253
Copper, Production of	274
Crime, Statistics of	264
Currency ,,	247
Customs Revenue	260
Deaths, Statistics of	262
Debt, National	249
Direct Local Taxation	252
Discount, Rate of	253
Drunkenness in London	264
Education, Annual Grants for	265
,, Statistics of	266
Elementary Schools	265
Emigration, Statistics of	269
Emigrants, Occupation of	270
Excise Statistics	248
Exports	256
Female Teachers	268
Finance and Taxation, Statistics of	247
Food, Importation of	256
Green Crops	261
Historical MSS. By W. E. A. Axon	73
Hops, Statistics of	260
Hydrophobia, Deaths from	264
Immigration, Statistics of	269
Imports, Statistics of	256
Income Tax, Rates of	251
,, Receipts from	274
Irish Agriculture, Statistics of	261
,, Births, &c., Statistics of	262
Irish Produce Exported	258
Iron, Production of	274
Legislation of 1886	219
Liabilities of the Bank of England	254
Live Stock	261
Local Taxation	252
Lunatics	263
Marriages, Statistics of	262
Merchant Shipping, Statistics of	263
Metropolitan Police Force. By C. E. Howard Vincent, M.P.	5
Mint. The Coinage of the	262
Miscellaneous Statistics	274
Music of the Year. By J. A. Fuller-Maitland	193
National Debt	249–251
,, Gallery	268
,, Revenue	247
Navigation, Statistics of	255
Pacific Islands. By H. A. Webster	83
Parliaments, Acts of	219
,, ,, Abstracts of	225–246
Pauperism, Statistics of	263
Police Force	262
Population, Statistics of	262
Post Office, Revenue of	271
,, Work of	271
Railway Accidents	264
,, Progress	274
Rates of Income Tax	251
Sailing and Steam Vessels, Tonnage of	255
Salaries of Teachers	268
School Supply	265
Schools, Elementary	265
,, ,, cost of	266
Shorthand, History and Present Position of. By W. E. A. Axon	22
Spirit Duties	260
Spirits, Foreign	260
Sport of the Year. By W. A. Blew	207
Stamp Duties	248
Star-Groups and Star-Magnitudes. By W. T. Lynn	13
Statutes, Table of	219
,, Abstracts of	225–246
Stock, Prices of	253
Stolen Property	264
Street Accidents	264
Taxation, Statistics of	247
Tea	260
Terminable Annuities	251
Tobacco	260
Trade and Agriculture, Statistics of	260
Training Colleges	265
Transhipments	259
Unfunded Debt	249
Wheat, Average Price of	261
Wine, Revenue from	260

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In 1882 to 36 per cent. of the Sums Assured and bonus added thereto; and to 13 times the Annual Premiums payable.

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In June, 1877, the amount of Profits declared by the Company was ... **£183,883**

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Sums Assured, with Bonus Additions	£9,512,526
Security—Accumulated Fund	£3,550,863
Annual Income	£378,732
Total Claims paid, with Bonus Additions	£7,822,300
Total Bonuses declared to 1883 inclusive	£4,153,415

Bonus.—The Society being on the **Mutual** principle, the Assured share the **whole of the Profits.** Policies effected before 31st December of each year receive a full year's Bonus for the year of entry.

QUINQUENNIAL DIVISION OF PROFITS, 1884.

Assets	£3,619,661
Liabilities...	3,050,831
Surplus	£568,830

Prospectuses, Statement of Accounts, and full particulars may be obtained on application to

JOHN RALPH GRIMES, *Secretary.*

EQUITABLE LIFE ASSURANCE SOCIETY.

OPPOSITE THE MANSION HOUSE, LONDON.

Founded A.D. 1762.

THE OLDEST LIFE OFFICE ON THE MUTUAL PRINCIPLE IN THE WORLD.

BONUS TABLE FOR 1887.

TABLE showing the total Amount payable under a Policy for £1,000 (including the additions), in the event of its becoming a claim after payment of the premium due in the year 1887.

Date of Policy.	Sum payable including additions. £	s.
From 24th July 1817 to 16th April 1818	3735	0
,, 18th April 1818 to 4th Feb. 1819	3635	0
,, 5th Feb. 1819 to 3rd Jan. 1820	3535	0
,, 7th Jan. 1820 to 22nd Dec. 1820	3435	0
,, 23rd Dec. 1820 to 30th Nov. 1821	3335	0
,, 1st Dec. 1821 to 7th Mar. 1823	3235	0
,, 7th Mar. 1823 to 24th May 1824	3135	0
,, 25th May 1824 to 8th Mar. 1825	3035	0
,, 9th Mar. 1825 to 3rd Nov. 1826	2960	0
,, 7th Nov. 1826 to 15th July 1828	2885	0
,, 21st July 1828 to 1st Mar. 1830	2810	0
,, 3rd Mar. 1830 to 24th Nov. 1831	2735	0
,, 24th Nov. 1831 to 1st Aug. 1833	2660	0
,, 1st Aug. 1833 to 18th June 1835	2585	0
,, 19th June 1835 to 21st July 1837	2510	0
,, 21st July 1837 to 22nd Jan. 1839	2435	0
,, 24th Jan. 1839 to 10th Dec. 1840	2360	0
,, 15th Dec. 1840 to 2nd Nov. 1842	2285	0
,, 12th Nov. 1842 to 18th June 1845	2230	0
,, 19th June 1845 to 2nd Mar. 1847	2175	0
,, 3rd Mar. 1847 to 14th Nov. 1848	2120	0
,, 14th Nov. 1848 to 19th Nov. 1850	2065	0
,, 19th Nov. 1850 to 26th July 1853	2010	0
,, 26th July 1853 to 31st Dec. 1855	1955	0
,, 1st Jan. 1856 to 31st Dec. 1856	1900	0
,, 1st Jan. 1857 to 31st Dec. 1857	1845	0
,, 1st Jan. 1858 to 31st Dec. 1858	1790	0
,, 1st Jan. 1859 to 31st Dec. 1859	1735	0
,, 1st Jan. 1860 to 31st Dec. 1860	1697	10
,, 1st Jan. 1861 to 31st Dec. 1861	1660	0
,, 1st Jan. 1862 to 31st Dec. 1862	1622	10
,, 1st Jan. 1863 to 31st Dec. 1863	1585	0
,, 1st Jan. 1864 to 31st Dec. 1864	1557	10
,, 1st Jan. 1865 to 31st Dec. 1865	1510	0
,, 1st Jan. 1866 to 31st Dec. 1866	1472	10
,, 1st Jan. 1867 to 31st Dec. 1867	1435	0
,, 1st Jan. 1868 to 31st Dec. 1868	1397	10
,, 1st Jan. 1869 to 31st Dec. 1869	1360	0
,, 1st Jan. 1870 to 31st Dec. 1870	1340	0
,, 1st Jan. 1871 to 31st Dec. 1871	1320	0
,, 1st Jan. 1872 to 31st Dec. 1872	1300	0
,, 1st Jan. 1873 to 31st Dec. 1873	1280	0
,, 1st Jan. 1874 to 31st Dec. 1874	1260	0
,, 1st Jan. 1875 to 31st Dec. 1875	1220	0
,, 1st Jan. 1876 to 31st Dec. 1876	1180	0
,, 1st Jan. 1877 to 31st Dec. 1877	1140	0
,, 1st Jan. 1878 to 31st Dec. 1878	1100	0
,, 1st Jan. 1879 to 31st Dec. 1879	1060	0
,, 1st Jan. 1880 to 31st Dec. 1880	1040	0
,, 1st Jan. 1881 to 31st Dec. 1881	1020	0

The Equitable has never allowed Commission.

J. WARE STEPHENSON, *Actuary.*

GUARDIAN
Fire and Life Assurance Company.

Established 1821, *and Empowered by Special Acts of Parliament.*

Subscribed Capital	**£2,000,000**
Paid up Capital	**1,000,000**
Total Funds in hand	**3,901,000**
Total Income, over	**768,000**

Directors.

CHAIRMAN—BEAUMONT W. LUBBOCK, ESQ.

DEPUTY-CHAIRMAN—JOHN B. MARTIN, ESQ.

ROWLAND NEVITT BENNETT, ESQ.
HENRY BONHAM-CARTER, ESQ.
CHARLES F. DEVAS, ESQ.
ALBAN G. H. GIBBS, ESQ.
JAMES GOODSON, ESQ.
JOHN J. HAMILTON, ESQ.
THOMSON HANKEY, ESQ.
RICHARD M. HARVEY, ESQ.
RIGHT HON. JOHN G. HUBBARD, M.P.
JOHN HUNTER, ESQ.
GEORGE LAKE, ESQ.
RT. HON. G. J. SHAW-LEFEVRE, M.P.
S. HOPE MORLEY, ESQ.
HENRY JOHN NORMAN, ESQ.
DAVID POWELL, ESQ.
AUGUSTUS PREVOST, ESQ.
JOHN G. TALBOT, ESQ., M.P.
HENRY VIGNE, ESQ.

Auditors.—HORACE DEVAS, ESQ. and WILLIAM FICKUS, ESQ. EDMUND JAMES, ESQ. and MORGAN YEATMAN, ESQ.

Physicians.—J. RUSSELL REYNOLDS, ESQ., M.D., F.R.S., 38, Grosvenor Street, W.; W. R. GOWERS, ESQ., M.D., 50, Queen Anne Street, W.

Solicitors.—MESSRS. PARKIN, WOODHOUSE, TROWER & FREELING, 5, New Square, Lincoln's Inn.

Head Office:—11, LOMBARD STREET, LONDON, E.C.

Manager of the Fire Department.—F. J. MARSDEN.
Actuary and Secretary.—T. G. C. BROWNE.
Bankers.—MESSRS. MARTIN & Co., 68, Lombard Street.

Law Courts Branch:—21, FLEET STREET.

Branch Manager.—RALPH P. HARDY. | *Bankers.*—MESSRS. CHILD & Co., 1, Fleet St.

LIFE DEPARTMENT.

The last Quinquennial Valuation was made on the basis of the Institute of Actuaries' (H^M & H^{M5}) Tables of Mortality and 3 per cent. interest, the net premiums only being valued and the whole of the loading reserved. The sum of £175,228 was divided as a bonus among 5,052 participating policies assuring exclusive of existing bonus £4,321,144, the annual premiums payable under which amounted to £132,533 2*s.* 2*d.*

The exceptional Security offered by the paid up Capital of £1,000,000 has attracted a large amount of non-participating business to the Company, and the profit derived from it during the five years was more than sufficient to pay the sum of £40,000 which the Proprietors took as their share of the surplus, and which was the sole benefit which they received from the Life business in return for the guarantee afforded by the unusually large paid-up Capital of the Company. The Policy-holders in the "Guardian" have, therefore, the Security of a Proprietary Company with the Profits of a Mutual Society.

The full Bonus Report and Prospectus will be forwarded on application.

Life Fund (1885) - - £2,177,000 | Life Income - - - £288,000

FIRE DEPARTMENT.

Insurances effected on Property at Home and Abroad at Moderate Rates. Losses by Lightning are made good by the Company.

Fire Fund (1885) - - £539,000 | Fire Income - - - £453,000

HAND-IN-HAND

FIRE AND LIFE INSURANCE SOCIETY,

26, NEW BRIDGE STREET, BLACKFRIARS, LONDON, E.C.

Instituted in 1696.—*Extended to Life Insurance*, 1836.

DIRECTORS.

The Hon. LIONEL ASHLEY.	C. AUSTEN LEIGH, Esq.
T. PALMER CHAPMAN, Esq.	F. LOCKER-LAMPSON, Esq.
JOHN LETTSOM ELLIOT, Esq.	T. FULLER MAITLAND, Esq.
Admiral Sir L. G. HEATH, K.C.B.	ARTHUR SPERLING, Esq.
CHAS. R. GURNEY HOARE, Esq.	Rt. Hon. Lord THURLOW, F.R.S.
ANDREW JOHNSTON, Esq.	W. ESDAILE WINTER, Esq.

Bankers—Messrs. GOSLINGS & SHARPE, 19, Fleet Street.

Physician—THOMAS K. CHAMBERS, M.D.

Solicitors—Messrs. NICHOLL, MANISTY, & Co., 1, Howard Street, Strand.

AUDITORS.

Messrs. TURQUAND, YOUNGS & Co.

Secretary—BENJAMIN BLENKINSOP, Esq.

Actuary—JAMES TERRY, F.I.A.

The **oldest Insurance Office** in the World.

The **only Mutual Office** in the Kingdom for both **Fire and Life.**

There being **no Shareholders, all Profits** are **divided amongst** the **Insured.**

BONUS RETURNS.

LIFE—1st Series ... ... 75 per Cent. per Annum.
2nd Series (according to the age of the Policy) ... 70 to 75 per Cent. per Annum.
3rd Series do. do. ... 50 rising to 60 per Cent. per Annum.
4th Series, after 1st Five Years, to commence at . 45 per Cent. per Annum.

FIRE (with certain exceptions)—Annual Policies 20 per cent. at the end of each 5th year. Septennial Policies, varying with the nature of the risk, 25 to 50 per cent. at the end of each 7th year.

No Policy Holder is subject to **any Personal Liability.**

The Directors are **willing to appoint as Agents persons of good position and character.**

VALUATION BALANCE SHEET, 31*st DECEMBER*, 1885.

ASSETS.

General Accumulated Fund, Fire and Life	£1,646,932
Life Assurance Fund, under Act of 1870	519,414
Present Value of Life Premiums	1,668,393
	£3,834,739

LIABILITIES.

Present Value of Sums Insured and Annuities, LIFE ...	£2,380,174
Sum Reserved for future Abatements on Premiums, LIFE	1,021,786
Sum Reserved for Bonus Returns on unexpired Policies, FIRE	22,770
Premiums in hand on account of unexpired terms of Insurance, FIRE	42,805
Balance of Assets unappropriated	367,204
	£3,834,739

The ACCOUNTS and STATEMENTS as deposited with the Board of Trade, as well as Prospectuses and Forms of Proposal, may be had of any of the Society's Agents, or on application at the Head Office.

BENJAMIN BLENKINSOP, *Secretary*.

THE LONDON ASSURANCE.

Incorporated by Royal Charter, A.D. 1720.

FOR FIRE, LIFE, AND MARINE ASSURANCES.

Head Office—No. 7, ROYAL EXCHANGE, LONDON.

Branch Offices
- No. 43A, PALL MALL, LONDON.
- „ 99, ST. VINCENT STREET, GLASGOW.
- „ 14, EAST PARADE, LEEDS.
- „ 28, EXCHANGE STREET EAST, LIVERPOOL.
- „ 16, CROSS STREET, MANCHESTER.

LEWIS ALEXANDER WALLACE, ESQ., *Governor.*
GEORGE WILLIAM CAMPBELL, ESQ., *Sub-Governor.*
DAVID PLENDERLEATH SELLAR, ESQ., *Deputy-Governor.*

DIRECTORS.

CHAS. G. ARBUTHNOT, Esq.	ROBERT GILLESPIE, Esq.	GREVILLE H. PALMER, Esq.
OTTO AUGUST BENECKE, Esq.	HOWARD GILLIAT, Esq.	Capt. R. W. PELLY, R.N.
ROBERT HY. BENSON, Esq.	HENRY GOSCHEN, Esq.	HOWARD POTTER, Esq.
ROBERT BURN BLYTH, Esq.	EDWIN GOWER, Esq.	WILLIAM RENNIE, Esq.
WILLIAM T. BRAND, Esq.	A. C. GUTHRIE, Esq.	ROBERT RYRIE, Esq.
ALFRED CLAYTON COLE, Esq	ROBERT HENDERSON, Esq.	ALBERT G. SANDEMAN, Esq.
GEORGE B. DEWHURST, Esq.	LOUIS HUTH, Esq.	Col. LEOPOLD R. SEYMOUR.
HENRY LLOYD GIBBS, Esq.	HENRY J. B. KENDALL, Esq.	JOHN YOUNG, Esq.

West End Committee.

S. P. LOW, Esq. (Messrs. Grindlay & Co.)
CHARLES S. PARIS, Esq., 22, King Street, St. James's.
The Hon. FRANCIS PARKER, M.P., 3, Temple Gardens, E.C.
The Hon. JOHN MANNERS-SUTTON, *Manager of West End Branch.*

Secretary.
JOHN P. LAURENCE, ESQ.

Underwriter.
JOHN STEWART MACKINTOSH, ESQ.

Actuary.
ARTHUR H. BAILEY, ESQ.

Manager of the Fire Department.
JAMES CLUNES, ESQ.

Medical Officers.

EDWARD CLAPTON, M.D., 10A, St. Thomas's Street, Southwark.
JOHN HARLEY, M.D., 39, Brook Street, Grosvenor Square.

The Corporation has granted Fire, Life, and Marine Assurances for more than a Century and a half; during that long period it has endeavoured to introduce into its practice all the real improvements that have from time to time been suggested, and to afford every facility for the transaction of business.

Of the Share Capital the sum of £448,275 has been paid up. The funds in hand exceed £3,400,000.

Claims under Life Policies are payable at once upon proof of death and title being furnished to the satisfaction of the Court of Directors.

Copies of the Accounts pursuant to "The Life Assurance Companies Act, 1870," can be had on application personally or by letter.

North British and Mercantile Insurance Company.

Incorporated by Royal Charter and Special Acts of Parliament.

Resources of the Company as at 31*st December*, 1885 :—

I.	Authorised Capital	£3,000,000	0	0
	Subscribed Capital	2,500,000	0	0
	Paid-up Capital...	625,000	0	0
II.	Fire Fund—Reserve...	£1,250,000	0	0
	Premium Reserve	382,836	18	1
	Balance of Profit and Loss Account	53,621	5	4
		£1,686,458	3	5
III.	Life Fund—Accumulated Fund of Life Branch	£3,592,628	1	8
	,, ,, Annuity Branch	586,444	3	9
		£4,179,072	5	5
IV.	Revenue for the Year 1885—			
	From the Life Department: Life Premiums, Interest, and Fees	£520,735	9	2
	Annuity Prices, Premiums, and Interest	100,518	6	0
		£621,253	15	2
	From Fire Department: Fire Premiums, Interest and Fees ...	£1,238,353	9	8
		£1,859,607	4	10

The Accumulated Funds of the Life Department are free from liability in respect of the Fire Department, and in like manner the accumulated Funds of the Fire Department are free from liability in respect of the Life Department.

President—
His Grace the Duke of Roxburghe.

Vice-President—
His Grace the Duke of Sutherland, K.G.

Chairman of the Central Court—David Davidson, Esq.

LONDON DIRECTORS.

Chairman—John White Cater, Esq. *Deputy-Chairman*—Baron Schröder.

Charles Morrison, Esq.	A. H. Campbell, Esq.	Hon. Charles W. Mills, M.P.
P. du Pré Grenfell, Esq.	Richard Brandt, Esq.	Hon. C. N. Lawrence.
George Garden Nicol, Esq.	John Sanderson, Esq.	Charles A. Cater, Esq.
George Young, Esq.	Quintin Hogg, Esq.	Alex. D. Kleinwort, Esq.

Manager of Fire Department.
George Henry Burnett.
Foreign Sub-Managers.
Philip Winsor and C. E. De Paiva.
Secretary.—F. W. Lance.

Manager of Life Department and Actuary—Henry Cockburn.
Medical Officers.
Hermann Weber, M.D.; H. Port, M.D.
Solicitor.—Sir W. R. Drake.

EDINBURGH DIRECTORS.

J. F. Walker-Drummond, Esq.	Charles B. Logan, Esq.	Sir James H. Gibson-Craig, Bart.
David Baird Wauchope, Esq.	Evan Allan Hunter, Esq.	Rt. Hon. the Earl of Elgin.
Sir James Gardiner Baird, Bt.	Charles Gairdner, Esq.	The Right Hon. Sir Thos. Clark, Bt., Lord Provost of Edinburgh.
Geo. Auldjo Jamieson, Esq.	Ralph Dundas, Esq.	
Frederick Pitman, Esq.	John Wharton Tod, Esq.	
	Hon. Henry J. Moncreiff.	

Manager—A. Gillies Smith, F.R.S.E.
Secretary—Philip R. D. Maclagan.
Actuary—Thomas Wallace.

Med. Officer—Jn. Moir, M.D., F.R.C.P.
Solicitors—J. & F. Anderson, W.S.
Auditor—Tho. Haldane, *Chart. Account.*

LIFE DEPARTMENT.

The principles on which this Company was founded, and on which it continues to act, combine the system of Mutual Assurance with the safety of a large Protecting Capital and Accumulated Funds, and thus afford all the facilities and advantages which can prudently be offered by any Life Assurance Office. Under these principles the business of the Company continues rapidly to increase. *Ninety per Cent.* of the *Whole Profits* is divided among the Assurers on the Participating Scale. The *Profits* are divided every five years. *Policies are Indisputable* after Five Years. *Annuities* of all kinds are granted, and the rates fixed on the most favourable terms.

Prospectuses and every information can be obtained at the CHIEF OFFICES.

London: 61, Threadneedle St., E.C.; West End Office: 8, Waterloo Place, S.W. Edinburgh: 64, Princes St.

British Empire Mutual Life Assurance Company,

NEW BRIDGE STREET, LONDON, E.C.

Incorporated in the year 1847, *under Act* 7 *and* 8 *Vict. cap.* 110, *and further empowered by Special Act*, 15 *Vict. cap.* 53.

DIRECTORS.

JOHN RÜNTZ, Esq., F.A.S., F.S.S., *Chairman.*
J. H. TROUNCER, M.D., Lond., *Deputy Chairman.*

H. M. BOMPAS, Esq., Q.C.
HUGH CAMPBELL, M.D.
ROBERT FREEMAN, Esq.
WILLIAM GROSER, Esq.
PEARSON HILL, Esq.
DONALD MUNRO, Esq.
THE HON. HENRY NOEL.
GEORGE PHILLIPS, Esq.
JOHN E. TRESIDDER, Esq.
WILLIAM HENRY WILLS, Esq.

Auditors (elected by the Members)—W. AUGUSTINE SPAIN, Esq., AND HENRY CATTLEY STEWART, Esq. *Solicitors*—Messrs. WATSON, SONS, & ROOM. *Surveyor*—SAMUEL WALKER, Esq. *Actuary*—JOSIAH MARTIN, F.I.A., F.S.S. *Physician*—E. H. GREENHOW, M.D., F.R.S. *Secretary*—EDWIN BOWLEY, F.I.A., F.S.S.

This Company being established on the **Mutual Principle,** all surplus funds belong to the Members. Every third year a careful Valuation of the Business is made, and large Bonuses have been declared. The Average Cash Bonus (Triennially) exceeds 20 per cent. on the Premiums paid.

The Surplus Funds already appropriated exceed **One Million Sterling.** It has an ANNUAL INCOME exceeding **Two Hundred and Ten Thousand Pounds.** An ACCUMULATED FUND, arising solely from premiums, exceeding **One Million One Hundred and Twenty Thousand Pounds.** And has PAID IN CLAIMS upwards of **One Million Sterling.**

Policies absolutely indisputable after five years, provided the age of the Assured has been admitted. Policies kept in force when requested by appropriating the Surrender Value to the payment of premiums. No charge for voyage to, or residence in, any part of the world, except unhealthy climates. Assurers under the TEMPERANCE SCHEME are placed in a separate Section. Policies may be effected under the Deferred Bonus plan. *Loans on Freeholds, Leaseholds, and other Securities considered.*

Prospectuses, Copies of the last Report and Balance Sheet, and Board of Trade Returns, &c., can be obtained on application to any of the Agents of the Company, or to EDWIN BOWLEY, *Secretary.*

GOVERNESSES' BENEVOLENT INSTITUTION.

INCORPORATED BY ROYAL CHARTER,

WITH POWER TO HOLD LAND BY GIFT OR PURCHASE.

BOARD OF MANAGEMENT.

THE REV. ALFRED J. BUSS, B.A.
ARTHUR RISDON CAPEL, Esq.
CECIL CHAPPELL, Esq.
GEORGE COCKLE, Esq.
SIR JAMES COCKLE, F.R.S.
THE LORD DUNSANY.
W. TIMBRELL ELLIOTT, Esq.
GEORGE B. GREGORY, Esq.
FREDERIC WILLIAM HAIGH, Esq.
SIR FREDERICK J. HALLIDAY, K.C.B.
THE LORD KINNAIRD.
THE REV. PREBENDARY MACKENZIE, M.A.
SIR ROBERT MONTGOMERY, K.C.B.
JOHN JEFFRYES OAKLEY, Esq.
THE REV. J. G. PILKINGTON, M.A.
R. RUTHVEN PYM, Esq.
EDWARD THORNTON, Esq.
T. PARRY WOODCOCK, Esq.
THOMAS HOADE WOODS, Esq.

Honorary Secretary—THE REV. ALFRED J. BUSS, B.A.

Secretary—CHARLES WILLIAM KLUGH, Esq., 32, Sackville Street, W.

The objects of this Society are—

Temporary Assistance to Governesses in distress, afforded privately and delicately, through the Ladies' Committee.

Annuity Fund. Elective Annuities to Aged Governesses, secured on invested capital, and thus independent of the prosperity of the Institution.

Provident Fund. Provident Annuities purchased by Ladies in any way connected with Education, upon Government Security, agreeably to the Act of Parliament. This branch includes a Savings Bank.

A Home for Governesses during the intervals between their engagements.

A System of Registration, entirely free of expense.

An Asylum for the Aged.

Membership consists in the payment of an annual Guinea, or of Ten Guineas in one sum. Subscribers are entitled to vote for Annuities in the proportion of one Vote for each Annual Half-Guinea not in arrear, and for each Donation of Five Guineas. Subscriptions are due on the 1st of January, and can always be remitted by Post-Office Order, or by a Cheque crossed "Sir S. Scott & Co."

NATIONAL LIFE ASSURANCE SOCIETY,

FOR MUTUAL ASSURANCE.

Established 1830.

2, KING WILLIAM STREET, LONDON, E.C.

Moderate Premiums, Large Profits, Undoubted Security, Prompt Payment of Claims.

Examples of Bonuses and Reductions of Premiums:—

CLASS A.—Closed 1870.				CLASS B.—Commenced in 1871.			
Date of Policy.	Age at Entry.	Sum Assured.	Total Bonus.	Date of Policy.	Age at Entry.	Original Premium.	Permanent Reduction.
		£	£			£ s. d.	£ s. d.
1858	55	200	243	1871	38	31 0 0	9 12 9
1862	32	1,500	922	1872	54	54 10 10	26 5 7
1864	26	1,000	527	1874	47	41 7 6	11 6 6
1868	39	2,000	922	1875	71	455 4 7	334 19 4
1870	31	300	116	1876	60	314 12 6	111 6 6

Assurers in Class A have their Premiums reduced by 87 per cent. of the original amounts, leaving them only 13 per cent. to pay. Those who elected to take Bonuses instead of Reductions have *annual* additions made to their Policies, varying from 4 to over 9 per cent. of the original sums assured.

Assurances granted to Military and Naval Officers at low fixed rates, covering all risks of Climate and Service.

Prospectuses and every information furnished on application to

HENRY JOHN PUCKLE, *Manager & Secretary.*

PROVIDENT LIFE OFFICE.

FOUNDED 1806.

50, REGENT STREET, LONDON, W., AND 14, CORNHILL, E.C.

EXISTING ASSURANCES exceed	**£7,000,000**
INVESTED FUNDS	**£2,455,791**
ANNUAL INCOME	**£323,780**
CLAIMS AND SURRENDERS exceed ...	**£8,000,000**
BONUSES DECLARED	**£2,629,814**

REVISED CONDITIONS OF ASSURANCE. — Foreign Residence and Travel.—All Policies already issued and to be issued, after having been Five Years in Force—the Life Assured not being engaged in any Military, Naval, or Seafaring Service, and of the age of Thirty Years and upwards—shall be relieved from all conditions as to Foreign Residence and Travel.

Suicide Claims.—In the event of Death by Suicide after a Policy has been Twelve Months in force, the Claim is paid in full. If Death occurs *within* Twelve Months the whole of the Premium paid is refunded.

This in no way affects the old-established rule of the Office to pay Suicide Claims in full under Policies granted to one person on the life of another, or where the Policies are held by Assignees for a bonâ fide *consideration.*

HALF-CREDIT SYSTEM.—Merchants, Traders, and others, requiring the full use of their Capital, and desiring a Life Policy at the cheapest present outlay, are invited to examine the terms of the Half-Credit System of this Office.

Prospectuses, and further Information to be obtained at the Head Office, or of any of the Agents. CHARLES STEVENS, *Actuary and Secretary.*

PRUDENTIAL ASSURANCE COMPANY, LIMITED,

HOLBORN BARS, LONDON.

DIRECTORS.

EDGAR HORNE, Esq., Great George Street, Westminster, *Chairman.*
HENRY HARBEN, Esq., Seaford Lodge, Hampstead, *Deputy-Chairman.*
ROBERT BARNES, M.D., Harley Street, London.
ROBERT CROSS, M.D., 42, Craven Street, London.
PATRICK FRASER, M.D., Oriental Club, London.
H. A. HARBEN, Esq., 1, New Square, Lincoln's Inn, London.
W. T. PUGH, Esq., Belsize Park, Hampstead.
PERCY T. REID, Esq., Lloyds, London.

MANAGERS.

Industrial Branch— THOMAS C. DEWEY, Esq.

Ordinary Branch— WILLIAM HUGHES, Esq.

Every Description of Life Assurance and Annuity Business Transacted.

Invested Funds	**£6,000,000**
Claims Paid	**£8,000,000**
Premiums, Ordinary Branch	**£350,000**
Premiums, Industrial Branch	**£2,870,000**
Interest	**£200,000**
Total Income	**£3,420,000**

The Last Annual and Valuation Reports can be obtained upon Application.

W. J. LANCASTER, *Secretary.*

ROYAL EXCHANGE ASSURANCE CORPORATION

(*Established by Royal Charter, A.D.* 1720).

FOR SEA, FIRE, LIFE, AND ANNUITIES.

CHIEF OFFICE:—ROYAL EXCHANGE, LONDON.
BRANCH:—29, PALL MALL.

The Accumulated Funds exceed £4,000,000.
The Total Claims paid by this Corporation have exceeded THIRTY-FOUR MILLIONS Sterling.

FIRE.

Policies issued free of expense.

Losses occasioned by Lightning will be paid, whether the property be set on fire or not.

Loss or damage caused by Explosion of Coal Gas in any building assured will be made good.

LIFE.

LIBERAL CONDITIONS OF ASSURANCE.

Surrender Values allowed after payment of two annual Premiums.
Paid-up Policies allowed in lieu of Surrender Values.
Extensive Foreign Residence free of charge from the first.
Policies "Indisputable" and "World-wide" after 5 years.
Claims paid at once, on proof of death and title, without discount.
A Prospectus, Table of Bonus, and Balance Sheet will be forwarded on application.

E. R. HANDCOCK, *Secretary.*

MURRAY'S STUDENTS' MANUALS:

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